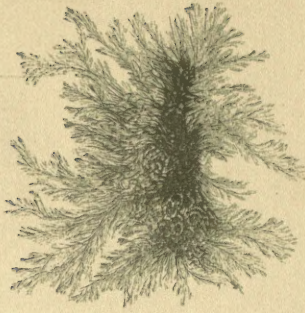


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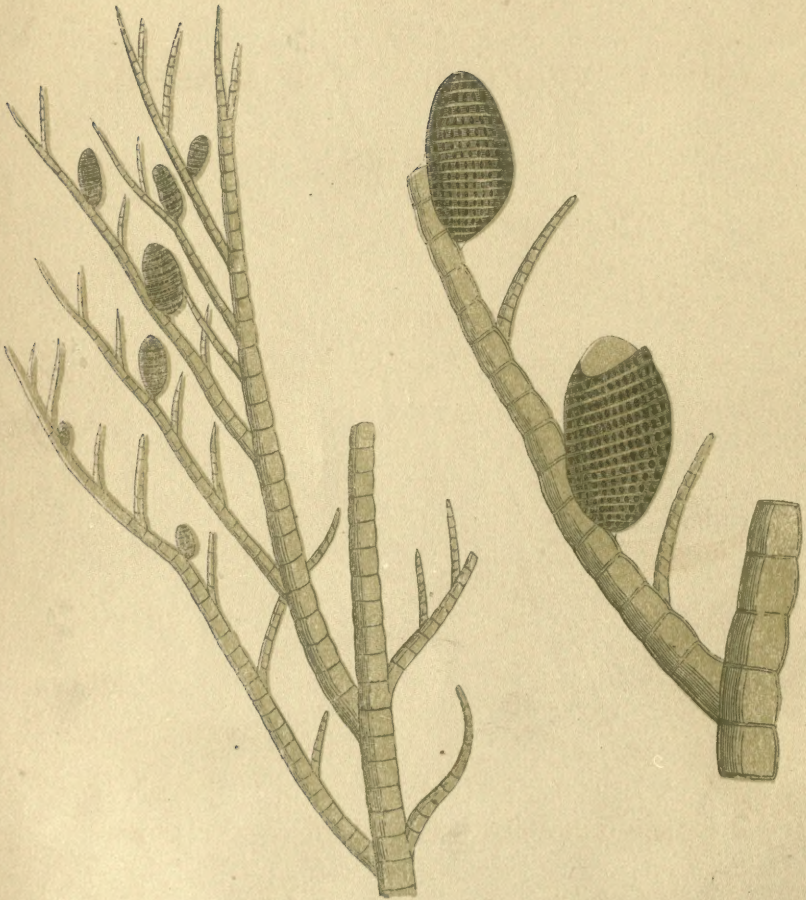


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ECTOCARPUS TESSELATUS.

Periodicals. - London

THE

NATURALIST;

A POPULAR MONTHLY MAGAZINE,



ANIMAL, VEGETABLE, AND MINERAL
KINGDOMS.

CONDUCTED BY

BEVERLEY R. MORRIS, ESQ., A.B., M.D., T.C.D.,

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NATURALIST

A POPULAR MONTHLY MAGAZINE

EDITED BY

ANIMAL, VEGETABLE, AND MINERAL

LONDON



REVISED BY

ALSO

VOL. I

WITH

LONDON

GEORGE ALLEN AND UNWIN, PATERNOSTER ROW

THE NATURALIST.

INTRODUCTION.

IN writing a short introduction to the "Naturalist," we do not think it necessary to combat many of the notions respecting Natural History, that have at one time or another acted prejudicially on the extended study of it, but we rather wish to place a few remarks in its favour, in probably a different light to that in which most of our readers have been in the habit of viewing the subject. We imagine that no one, even the most determined utilitarian, can now object to the study of Natural History, on the score of no practical benefit resulting from it. If any one is so hardy as to do so, we have only to refer him to our tradesmen, who will tell him that by the investigations of the Botanist, the adulterations in various articles of sale may now be absolutely put a stop to, by those who choose to avail themselves of the discoveries which have resulted from his studies. We here more particularly allude to the use of the microscope, by which not only can the adulteration of various articles of commerce be detected, but even the substances, by which the imposition is attempted, can be pointed out. Here several advantages are gained; not only is the purchaser preserved from fraud, but the cheat is exposed to punishment, to the manifest encouragement of the fair dealer. If he turns to the Agriculturist, he will be referred to the benefits conferred upon him by the Botanist, in telling him what grasses he must sow in order to obtain a useful turf in the shortest possible period. He will tell him of the help he has received from the Entomologist in combatting the attacks of injurious insects, by the knowledge he has imparted to him of their habits and economy. Should he question the miner he will tell him that the Geologist has saved him money, labour, and disappointment, by the information he has afforded him as to the best spot for commencing his work. There would be no difficulty in multiplying examples of this kind, but our object will be, we hope, sufficiently attained by the few we have selected.

Let us now examine the benefits to be derived from the study of Natural History, in an aspect in which they have seldom been exhibited, but in one which we have always endeavoured to place them in, when under the necessity of taking up the cudgels in defence of our favourite recreation. It is often asserted that nothing, but a study of mathematics, will give a man accurate ideas and powers of comparison and combination: this we altogether deny, and although we ourselves value and appreciate, as highly as any one, the use of

mathematics as an admirable mental exercise, independently of its intrinsic value, we still do assert, without hesitation, that similar advantages must result from the properly directed study of Natural History, and that other benefits are at the same time secured, which cannot in any way be associated with mathematics.

We shall endeavour now to give a very few examples of the mode in which a study of Natural History operates beneficially on the mind. Let us take the case of a person who has studied Entomology, we do not mean in that cursory way in which a mere *collector* does, who looks more to the beauty of the specimens than to their specific history and individual characteristics, though even this has its advantages. Let us take, we say, a person who has really *studied* Entomology, and become conversant with its details and the principles on which the classification of the various orders and families depend. Suppose he has only studied British Entomology, what a vast number of individuals are comprised in that term; and yet should any one single insect be presented to him, he can readily determine its place within certain limits, and eventually the particular spot it must occupy, and which can be filled by no other creature that is not of the same species. What ideas of order and regularity must not this man possess; what mental discrimination, to whom the individual characteristics of ten thousand essentially different creatures present no serious difficulties: what powers of combination, to whom these ten thousand creatures, taken together, present one beautiful and orderly whole—to whom even these ten thousand creatures as a whole present but the filling in of one small portion of the entire system of nature, which his mind is able to look upon with satisfaction, and to understand, even though his particular study has only taken in the one branch of British Entomology. Thus much for the high quality of the mental education which results from a well-regulated study of Nature.

Let us now turn to another branch of education which is too frequently overlooked, but which yet is of the utmost importance to man in his social and domestic relations, and which cannot but be greatly influenced, in a right direction, by the judicious use of Natural History as a recreative study; we allude to what is called the education of the affections. Would it be possible for a child who had been instructed in the marvellous transformations of the meanest insect—who was acquainted with the beautiful mechanism exhibited in its organization—who knew that it had nerves and muscles like himself—that it had its little pleasures and pains—that it had a definite object in life—that even in death it became necessary to support the life of some other creature; how would it be possible for him to torture this little insect, as, we regret to say, is too often the case with the ignorant, who look upon the agonizing writhings of the impaled insect as affording them intense delight, and whose only regret at its death is that their amusement is at an end. We well remember the horror and indignation we felt, when about nine years of age, on seeing a boy of our acquaintance catching butterflies and then depriving them of their wings, leaving the poor mutilated insects to linger out their

little day of life in agony. We ourselves were then in the habit of collecting insects to form collections, but we invariably, we are thankful to be able to say, put them out of pain quickly, and we trust with as little infliction of torture as possible; moreover we never could feel comfortable in taking more specimens than we wanted for our own cabinet, or those of our friends. We do not think the cause of humanity is served, by asserting, that "The poor beetle that we tread upon, in corporal sufferance, feels a pang as great as when a giant dies." We do as much harm by stating too much as by stating too little; the best argument in these cases has always appeared to us to be, that even admitting sensations of pain to be less acute in the lower classes than in the higher, few people will be hardy enough to assert that they experience *no pain* on being injured, and that we have no right, morally speaking, to inflict *any unnecessary* pain on any creature, which has as much right to enjoy the life given to him by his Creator as we have. No one can think he is doing wrong by resolving to give as little pain as possible to every creature, however minute or insignificant it may appear to be.

The study of many branches of Natural History cannot however be taxed with tending to cruelty, and the pursuit of some of these may be carried on under circumstances which would render a study of Zoology extremely difficult. Botany, Geology, Mineralogy, and the examination of nature's minute wonders by aid of the microscope, are all of this class, and are sources of much pleasure and instruction to all who engage in them.

While touching on the subject of the affections, there is one point of view in which we wish to place the study of Natural History before our readers; and as we find it ably handled by the elegant pen of the late Sir James Smith, in the preface to his "English Flora," we think we cannot do better than give it in his own words, merely remarking that the beneficial influences which he there mentions, must, we believe, always be the result of a rightly-directed study of Natural History. He says, "A man who looks no farther than the narrow bounds of his own profession or science, is sometimes inclined to depreciate those of other people, especially if any worldly advantage be concerned. Some studies seem to contract the mind; but such is not the character of Natural Science; which enlarges the understanding by a perpetual display of the power and wisdom of God; and encourages our best hopes by sure testimonies of his goodness. He who feeds the sparrows, and clothes the golden lily of the fields in a splendour beyond that of Solomon himself, invites us, his rational creatures, to confide in his promises of Eternal life. The simplest blade of grass, and the grain of corn to which 'he gives his own body,' are sufficient to convince us that our trust cannot be in vain. Let those who hope to inherit these promises, and those who love science for its own sake, cherish the same benevolent dispositions. Envy and rivalry in one case, are no less censurable than bigotry and uncharitableness in the other. The former are as incompatible with the love of nature, as the latter with the love of God; and they altogether unfit us for the enjoyment of happiness, here or hereafter."

One great advantage to be derived from a well-arranged study of nature, is the bar which it places to the indulgence of selfish feelings, which can scarcely exist in the breast of a true naturalist; for the pursuits he is engaged in are identified with a constant interchange of ideas and specimens; thus encouraging kind and friendly feelings between its votaries, whose aim should be, not to secure a larger number of specimens than their neighbour, but rather to spread the knowledge they may acquire, as far and widely as possible; the only rivalry should be as to who should do most for the advancement of the knowledge of Natural History; by which our best feelings and tastes would be fostered and promoted, and others would be assisted in treading the same useful and agreeable path, from which we should rejoice, if we have been the means of removing even a single impediment.

We are quite convinced that Natural History may be studied beneficially, even by those who are deeply engaged in the ordinary business avocations of life. The mind will not bear with impunity to be constantly engaged on one subject; it will have relaxation in one form or another. If it cannot have what is harmless or beneficial, it will take what is injurious and bad. In speaking of beneficial relaxation, we do not mean cessation from exertion, but merely a change in the nature of it, which every one who has been accustomed to prolonged mental occupation knows to be better and more agreeable to the mind than entire rest. Indeed an active and healthy mind could not be *at rest* absolutely; the only rest it can know, is obtained by using a different set of *mental muscles*, if we may be allowed, for the sake of illustration, to make use of such a term. In the pursuit of most objects of Natural History, this mental relaxation is obtained at the same time that the body is deriving benefit from the muscular exertion which necessarily attends all out-of-door occupations. We might pursue this subject to a much greater length, but we hope we have now said sufficient to enable each reader of the "Naturalist," to take up firm ground in defending the proper and healthy study of Natural History.

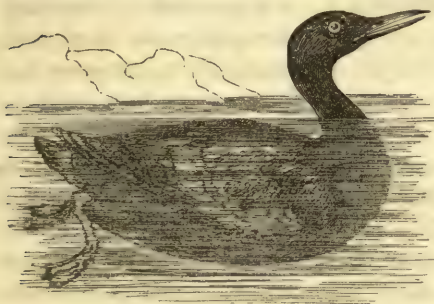
It will be our endeavour in conducting the "Naturalist," to keep the ideas expressed in this article before us constantly; and we trust we shall receive such assistance from our correspondents as will enable us to do so effectually; and we may then hope to see our favourite pursuit more generally embraced throughout the country, and made, as it is quite capable of being, a most valuable branch of study in the schools for the education of our younger friends, who we are sure would be largely benefitted in their other studies by the healthy relaxation thus afforded them. The head of any school, acting on this suggestion, will find not only a more healthy moral tone among his pupils, but will also experience the great advantages of exciting a community of feeling between himself and those placed in his care, and which cannot but operate advantageously on the other, and, to children, less interesting pursuits which necessarily engage most of their attention during their pupilage.

ON THE POWER THAT CERTAIN WATER-BIRDS POSSESS, OF REMAINING PARTIALLY SUBMERGED IN DEEP WATER.

BY BEVERLEY R. MORRIS, M. D.

IN watching the habits of some of our water-birds, I have often been greatly struck by the remarkable power many of them possess of keeping the body submerged for some time after they have allowed the head and neck to appear, on coming to the surface after a compulsory dive. As far as my own observations go, they do not make use of this precautionary measure when entirely undisturbed, and ignorant of being watched: on such occasions I think they always come up completely at once, and without any but the necessary interval between the emergence of the head, and the upper part of the body. After having noticed this curious and self-preservative power once, it was impossible that I should not speculate as to the mode in which the bird accomplished this singular but most useful manœuvre.

In sea birds, such as the Cormorant, the larger divers, and the Guillemot, I have often seen them, when emerging from a dive caused by fear, project the head and neck first out of the water, the body remaining completely out of sight; the bird then looks round to see if any danger is near; if it is not satisfied with the appearance of things, it is under water in an instant, and probably does not again come up till at a considerable distance; should, however, all be secure, after a few seconds, it allows the usual portion of the body to



appear; and this is evidently dependent on the will of the bird. On other occasions when not much alarmed, instead of again diving, it will allow the body to be slightly emerged, and continue swimming for some time in this state of partial submergence, like a deeply-laden ship. To show how completely the position of the bird in the water, as to submergence entire or partial, is under its own control, I will give one or two short extracts from the "American Birds" of the talented Audubon. In speaking of the *Plotus anhinga*, or Snake-bird, he says, "The Anhinga is in truth the very first of all fresh-water divers; with the quickness of thought it disappears beneath the surface, and that so as scarcely to leave a ripple on the spot; and when your anxious eyes seek around for the bird, you are astonished to find it many hundred yards distant; the head perhaps merely above water for a moment; or you may chance to perceive the bill alone gently cutting the water, and producing a line of wake, not observable beyond the distance of thirty yards from where you are standing. With habits like these it easily eludes all your efforts to obtain it."

In speaking of the Purple Gallinule, (*Gallinula martinica*), he says "It runs with great speed, and dives with equal address; often moving off under water with nothing but the bill above." Again, he says of the Common Moorhen, (*G. Chloropus*) "At all other times when raised, they suffer their legs to dangle, proceed slowly to a short distance, and drop among the reeds, or if over water, they dive and hide, leaving nothing but the bill projecting above the surface." One more and I have done. The Clapper Rail, (*R. Crepitans*),



"It dives well, remains a considerable time under water, and in this manner dexterously eludes its pursuers; when hard pressed it often sinks just below the surface, keeping the bill above in order to breathe; and in this position, if not detected, remains for a considerable time; if perceived and approached, it instantly dives, and uses its wings to accelerate its progress, but rises as soon as it comes to

a place of safety." These extracts all shew a wonderful power of control over their specific gravity in birds, which are, except the first, only moderately aquatic in their habits and conformation, and which one would hardly expect to exhibit the highest development of diving powers.

Before entering upon the mode in which the bird accomplishes this state of submergence, it may be well to remark, that birds in addition to the air contained in the lungs, are also furnished with large cavities called air cells, in every part of the body, where they do not interfere with the organization of the part. These air cells communicate with the lungs, but do not appear to be capable of being emptied of the contained air by the will of the bird. The bones and the barrels of the feathers are also full of air, so that the bird is naturally a good deal lighter than water, and cannot sink without some effort on its own part.

I will now proceed to consider the main subject of inquiry, namely, how the bird probably may be supposed to alter its buoyancy to such an extent as to enable it to maintain the whole of its body just beneath the surface of the water. It is manifest to any one who is at all conversant with the laws of hydrostatics, that *in deep water* this can only be accomplished in one of the following ways, by either of which the body of the bird might be supposed to be rendered of, as nearly as possible, the same specific gravity as the water in which it swims:—

1st.—The bird might expel so much air from its body, as to remove its

power of floating on the surface of the water; or,

2nd.—It might so compress its body as to condense the air in the various cavities to such an extent as to place it in the required condition.

With regard to the first of these suppositions, namely, that the bird might expel so much air as to remove its power of floating on the surface, although it is considered by some writers on the subject to be a plausible explanation of the phenomenon, I cannot think that it is the true one, for in the first place, we have no evidence at all that the bird has any power, as to expulsion at least, over the air in the various air cells, which constitute the great bulk of the air vessels contained in the body of the bird; indeed the general impression among anatomists is that it has no power at all over it; and even if it had, I cannot think it would be possible for the bird to expel it so quickly as would be necessary to produce such an immediate effect, as does actually take place; nor would the bird have the power of again taking it in so rapidly as it manifestly must do, to enable it to float at its ordinary level in so short a time after partial submergence as it in reality does.

In a paper on this subject, the Rev. J. C. Atkinson says, "Well, I will shoot a Moorhen in the act of diving, and will add to its specific gravity by depositing within its body some twenty or thirty grains of No. 5 shot. Of course then it will sink; and unless my retriever is a rather uncommon one I lose the bird. But no such thing; the Moorhen comes to the surface immediately, and floats almost as buoyantly as ever; and yet whence and how can the air have been procured, which has been applied to the replenishing of the air vessels, and the restoration of the bird's buoyancy." I will endeavour when considering the second supposition to give what I believe to be the true explanation of this fact, for it is only as a fact that it is brought forward by Mr. Atkinson, as being opposed to the idea that the bird expelled the air from its body before submergence, and which was the hypothesis of his opponent Mr. Slaney.

I have very little doubt in my own mind that the muscular system of the bird would enable it so to compress its body, as to expel sufficient air to make it of the same specific gravity as water, were the various air cavities so arranged as to allow of free egress and ingress; but unfortunately for this theory this is not the case, and I much doubt whether the removal of all air in the numerous air cells, the bones, and feathers, would be possible even under an air pump. Another argument also which bears strongly against this idea is, that were the bird to get rid of the air from the air cavities, it could only do so through the lungs, which thus must be in the same condition, and the bird would necessarily become suffocated, for want of the absolutely essential quantity of air for respiration, and which the bird can do without worse than any other animal, for its circulation, and consequently its respiration, is very rapid, and it is this which enables it to keep up its natural heat under circumstances that would be fatal to animals otherwise constituted. No; every bird on diving has the power, if it sees reason to exercise it, of arresting its

own progress upward, so that it shall at first only show its head and neck, or only its bill, above water, and it can in this state, take in a fresh supply of air, and this too in a single second, sufficient to enable it to take a long dive before again coming up, as every one must often have observed. How would it be possible for the bird to perform all this if it had gone down with such a reduced quantity of air as must have been the case, had this been the mode of accomplishing its purpose.

I will now dismiss this hypothesis, and proceed to consider the second mode.

2nd.—It might so compress its body as to condense the air in the various cavities to such an extent, as to place it in the required condition.

It is a well-known fact that if you condense a cubic foot of air into a vessel already containing another cubic foot under the ordinary atmospheric pressure, you do not increase the buoyancy of the vessel in water by the additional quantity of air, but the contrary—you lessen it, and make it sustain less weight in the water by somewhere about five hundred and thirty-five grains, or a little more than thirty-three pounds. Now I cannot help thinking that here we have the true solution of the difficulty in question. No one, I imagine, will deny that if the bird has the power of compressing itself to a sufficient extent, it must sink instead of swim. Let us now see whether it would be possible for a bird to compress itself to such an extent as to be in the condition of the vessel with the two cubic feet of air. To establish this point I will again quote from Audubon's "American Birds." In speaking of a young bird of the Least Bittern, (*Ardea exilis*,) which stood on the table while he made a drawing of it, he says, "Replacing it on the table, I took two books and laid them so as to leave before it a passage of an inch and a half, through which it walked with ease. Bringing the books nearer each other, so as to reduce the passage to one inch, I tried the Bittern again, and again it made its way between them, without moving either. When dead its body measured two inches and a quarter across, from which it is apparent that this species, as well as the Gallinules and Rails, is enabled to contract its breath to an extraordinary degree."

Here it is clear that this bird was somewhat in the condition alluded to, and this too without much apparent inconvenience; and I feel convinced the amount of compression which evidently existed in this case would be abundantly sufficient to produce in a water-bird the difference between floating well out of the water, and being merely suspended in it. In another place Mr. Audubon says of the Virginian Rail, (*Rallus Virginianus*,) "Like the two preceding species (*R. Elegans* and *Crepitans*,) the Virginian Rail has the power of contracting its body to enable it to pass with more ease between the stalks of strong grasses or other plants."

Now if these birds have the power of compressing themselves to so great an extent to enable them to move easily in their covers, is it at all improbable that diving birds should have a similar power, and one that would be of such great value to them in enabling them to preserve themselves in times of

danger. But farther, when a man attempts to dive, he takes a full inspiration first, and then, when diving, he powerfully exerts all the large muscles round the body, I have little doubt to produce instinctively the same effect that I suppose is produced in the diver, namely, to bring the specific gravity of his body nearer to that of the water, and so make the diving easier. Again, Mr. Atkinson said that a Moorhen shot when diving, instantly rose to the surface, notwithstanding the lead he had put into it. But why? simply because the bird being dead, the act of volition by which it compressed its body was gone, and the contained air instantly assumed its usual bulk, and the bird its usual position. So in the case of any bird diving from fear: it rises to the surface with its body in a state of compression; it at first only allows its head and neck to emerge, but on looking round and seeing no danger, it suddenly relaxes the effort which it had till then kept up, and its body instantly resuming its usual state, the bird as quickly assumes its natural position, and floats buoyantly on the water. Let, however, some slight occurrence disturb it, not enough to make it dive, and it instantly sinks itself deeper into the water, and remains submerged until it finds that all danger has disappeared.



It runs no risk of being suffocated, for the condensed air is just as capable of sustaining life as ordinary air, and will do so just as long as a common inspiration. The bird too in this compressed state is able to inspire regularly, though, of course, in a constrained manner.

Let us now take one illustration from another class of Nature's works—I mean the Paper Nautilus. The shell occupied by this curious animal is of considerable size, but has only a small portion of its cavity filled by the body of the animal. The rest of the shell is composed of cells, with the interior of each of which, however, the animal has a direct communication by means of what is called the siphuncle or tube. These cells in their natural state are filled with air or gas of some kind; and it is clear that in this condition the animal must float on the surface of the water, and cannot while in that state sink. But there is a very curious provision to obviate this inconvenience, for as soon as the animal is frightened, or from any other cause, contracts its body within the front part of the shell, water is by this very act forced down the tube, and so into all the cells, and thus compressing the air, the buoyancy of the animal is lessened, and it sinks in the water. When the animal wishes to rise, it protrudes the head, and this opens the communication between the cells and the external water, and the air expanding forces out the water, and the animal again floats. Here we find an action

analogous to that of the bird, produced without the slightest deviation from any of the known laws of nature.



It is true it is executed by a different application of the same principle which I have supposed to be called into action in the case of the bird, but manifestly only so modified on account of its peculiar formation, I mean from its external covering being rigid. Had it a power of contracting its outward covering, that is, its shell, to one-half its usual bulk, as I have proved the bird to have, it would no doubt exercise it, as the simplest way of producing the desired effect. The water it takes in is manifestly of no value whatever as ballast, for water will not sink in water, and moreover the water at the

surface is always warmer than that below, and consequently would rather tend to make it float. Its only use therefore must be to compress the air. If it was intended that the bird should use the same means to alter its specific gravity, would it not be provided with some special apparatus for the purpose, as we see the Nautilus is? No such provision, however, nor the most distant approach to it exists in the bird; but its external surface is capable of great compression, and is abundantly furnished with powerful muscles, whose combined action would be to compress the body, and they are under the control of the will of the bird. With the knowledge of all these facts before me, I can come to no other conclusion than that the bird does so compress its body as to condense the air in its various cavities to such an extent as to render the specific gravity of its body, about the same as that of the water in which it swims.

I have now taken a hasty survey of the whole subject. In the first place I shewed that diving birds possess a wonderful power over their own specific gravity in the water, and I brought, as proofs, records of the habits of certain birds, which had been made without reference to any particular theory, but simply as facts in the history of the birds. I next considered the explanation which is generally given of the phenomenon, and then gave what I hope were satisfactory reasons for considering it insufficient. And lastly, I brought forward

my own theory on the subject, and supported it to the best of my ability, by such analogical reasoning, as I trust will be sufficient to shew that it is in accordance with nature's usual mode of operation in similar cases, and I shall feel much gratification should my readers agree with me, in thinking that it is the probable explanation of the extraordinary power which has been the subject of our inquiry.

THE CUCKOO, (*CUCULUS CANORUS*,) FEEDING ITS OWN YOUNG.

BY J. MC'INTOSH, ESQ.

It is generally supposed by Ornithologists that the "Cuckoo" does not feed its young; that having deposited its egg in the nest of the Hedge Accentor, or some other small bird, it leaves it to the care of a foster-mother. On this subject I am in possession of proofs to overthrow this long-established belief.

In the summer of 1850, in the month of July, a *Hedge Accentor* constructed its nest in a holly hedge, about two feet from the ground, and about fourteen from an adjoining garden wall. Immediately on its being finished, and before the owner of it had time to deposit her second egg, a Cuckoo, which had for some days past been watching with anxious eye the operations of the Accentor, took the opportunity, during the temporary absence of the said Hedge Accentor, and quietly deposited in the nest her egg, which occupied but a few minutes, and immediately took her departure, uttering at the same time her well-known cry of 'cuckoo, cuckoo,' in rapid succession, to a neighbouring elm tree. Of this egg the Hedge Accentor took no notice, but deposited her four eggs, and commenced incubation. In due time this important office was completed, and *three Hedge Accentors* and the *Cuckoo* were brought to life, (or rather light,) the fourth egg of the Accentor proving addled. In the course of three days the young Accentors by some means, but by what means I could not ascertain, took their departure, as did also their mother, which I never saw again, nor any remains of the young; but the addled egg I found on the ground immediately beneath the nest. This departure took place in the evening or early in the morning. On the fourth day seeing the old Cuckoo frequently fluttering about the hedge which contained the Hedge Accentor's nest and the young Cuckoo, I was induced to watch her proceedings with some little care and attention. Taking my stand not at a great distance from the nest under the wall alluded to, in a few minutes the old Cuckoo flew over the wall to the nest; I immediately applied a pocket telescope to my eye, and very distinctly saw the old bird feed its young. This operation I watched some time every day, creeping nearer and nearer till I could see distinctly the actual feeding of the young without the aid of telescope or spectacles. I now became anxious to know whence the bird procured its food, which, I imagined from its frequent visits to the nest, was at no great distance, and of what description it was. Knowing the Cuckoo to be particularly fond

of caterpillars, I walked into the garden, where there were some gooseberry bushes covered with caterpillars of *Abraxas grossulariata*; thither I bent my steps, and saw the Cuckoo engaged in clearing the bushes of the caterpillars. When she had what she considered sufficient for that meal, off she flew in a direct line over the wall; and as if she had been shot, dropped on the other side, where the hedge in question was. In this manner the old bird continued to feed her young as long as a caterpillar remained on the bushes. When they were finished, she proceeded to a field near in quest of food; and through her diligence her progeny got as fat as a London Alderman. This proves further to me that the Cuckoo lays but one egg; at least this one could have laid no more; yet I never observed her sitting on the young in the nest, as other birds do. I have no doubt but some of your readers will cavil with me and say I am mistaken, having taken something else for the Cuckoo: but I say no; and hope before 1851 is ended, to be enabled to startle the Ornithologist a little more in the history of this singular bird; and set aside a great deal that has been in my opinion injudiciously promulgated.

Churminster, Dorset, November, 1850.

THE DIPPER, (*CINCLUS AQUATICUS*.)

BY ROBERT GRAY, ESQ.

SCOTLAND may be said to be the stronghold in Britain of the Dipper, as it is found in almost every district, extending even to the Hebrides; and the author, from whom this remark is taken, also beautifully observes: “The solitary and secluded nature of the streams it frequents, and their often wild character, render it a most fitting accompaniment—sufficient to break the solitude, but never obtruding on the calmness of the picture; one of those beautiful instances of nature’s chaste compositions, where the life of the landscape combines to harmonize with all around.”

Few persons, we apprehend, would imagine the common Water Crow to be one of our most pleasing songsters; yet it is so. The angler and the rambling naturalist know well its musical powers, as they from time to time have opportunity of listening to its sweet melody, barely heard above the ripple of the stream. It is a most unusual accomplishment for a bird of its habits; for, as is well known, it seeks its food at the bottom of pools, or the bed of the gliding brook, into which it plunges after aquatic insects, shells, and small fishes. We have seen it hunting for prey in the immediate neighbourhood of the Kingfisher and the Yellow Wagtail—two more gaily-coloured members of the feathered tribes, and must own, our partiality for the ‘pyet’ suffered nought from the comparison. Probably these beautifully descriptive lines by Corrington were at the time uppermost in our thoughts:—

* Sir William Jardine, in the “Naturalist’s Library.”

—"The bird

Is here, the solitary bird, that makes
The rock his sole companion. Leafy vale,
Green bower, and hedgerow fair, and garden rich
With bud and bloom, delight him not; he bends
No spray, nor roams the wilderness of boughs,
Where love and song detain a million wings
Through all the summer morn,—the summer eve;
He has no fellowship with waving woods;
He joins not in their merry minstrelsy,
But flits from ledge to ledge, and through the day
Sings to the highland waterfall that speaks
To him in strains he loves, and lists
For ever."—

Seldom in verse have the habits of any living creature been more truthfully depicted; for though in like strains the poet often sketches nature, yet the accustomed 'license' as often mars the life of the picture.

On one occasion we stood listening to one of these modest-looking songsters as it poured forth its lays, just as it had finished a finny meal from a small minnow, and taken up its position on a stone in the middle of a running brook, when the want of a skin strongly urged us to shoot it. It was a cruel act, followed by disappointment and regret; and the readers of the "Naturalist" may rest assured it will not be repeated by the same hand. On the shot being fired, the poor bird, to our surprise, remained sitting, and as we approached we could observe it closing its eyes, while the blood trickled down its white throat. It then started, flew a short distance, and falling into the bubbling 'rapids,' was carried off; while its mate (their nest being hard by,) hurried to and fro, and chirped in sounds of grief not to be mistaken. The mention of this brings to our recollection a short anecdote communicated by our friend, Dr. Nelson, of Lytham, who thus narrates the circumstance as it occurred to himself:—

"At the close of winter, or rather early in spring, whilst following the windings of a small stream in East Lothian with my gun on my arm, I started a Dipper, and sent a random shot after it. The bird appeared to be hit, but it flew on and at length settled on a stone about a hundred yards distant from me. Favoured by an intervening bank, I approached within a short distance of the spot; and never shall I forget the sweet warblings of that little throat as it murmured above the sound of the purling brook. My anxiety to procure a specimen caused me again to put up the bird, and I killed it on the wing; but when I came to examine the stone where it had been sitting, and found thereon several drops of blood, I was stung with remorse to think I had been the means of taking its life." Poor little Dipper! it had actually been singing after receiving a death wound, and thus, as our informant feelingly concludes, "had, whilst its life's blood trickled on its perch, warbled its last notes in the haunts of its happy solitude."

This is another of the melancholy cruelties arising from the 'want of a skin,' but qualified, we trust, as in the other case with as much remorse as

will guarantee a free pass to every Dipper that may hereafter cross our path.

Southeroft Govan, Glasgow, February, 1851.

AN ACCOUNT OF A LARGE FOSSIL MARINE
WORM OCCURRING IN THE MOUNTAIN LIMESTONE
DISTRICT, IN WENSLEYDALE, YORKSHIRE.

BY EDWARD WOOD, ESQ.

IN the course of a series of rambles among the vallies and hills of the Mountain Limestone district of the north of Yorkshire, undertaken during short intervals of relaxation, with a view in the first place more especially to geological subjects; in the second minor degree for the renovation of health, lost in following more uninviting pursuits, our attention was drawn to some specimens of flaggy rock, containing large and well-developed fossils, very curious and hitherto but little noticed: they were brought from a quarry in Wensleydale, called 'Tale Bank quarry,' to which we soon after contrived to pay a visit.

The quarryman, an intelligent specimen of his class—the Hugh Miller of his district—was particularly well-informed on the subject of the local deposits, and very much pleased to give any information upon them.

The fossils in question, we found were obtained from a cutting carried deep into the interior of the hill, not quite half way between Wensleybridge, and the top of Middleham moor, and on the lowest slopes of Penhill: the bed was over and underlaid by thick limestone deposits, and was apparently equivalent to the flagstone beds placed by Phillips in his section of the hills about Hawes, low down in the middle group of the Yoredale series, and called by him "the flagstone beds of Hawes." Its composition was a very finely laminated micaceous sandstone, the superficial colour of each lamina being a dark gray, its fracture lighter and slightly inclined to yellow; it contained two species of worm like processes, one about an inch, the other less than a quarter of an inch in circumference, and stretching in long contorted, but never convoluted folds, to a great length, and laying in a depression in the flag to the depth of four to five and sometimes more laminae, and impressed both on the upper and lower surfaces of the beds. Many of the laminae were also marked with the indentations which denote rain drops. Phillips, in his work on the geology of the Mountain Limestone, mentions this or a similar bed in Coverdale, as having "a carbonaceous surface, impressed with traces of vermicular and ramified markings."*—"Often of clearly organic origin and indicating littoral deposition."† But in the specimens before us, there is evident proof of more than mere

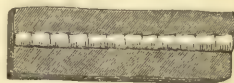
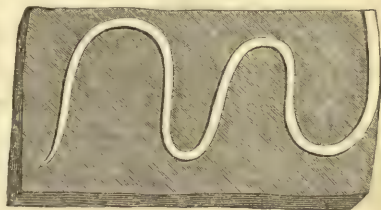
* Page 44.

† Page 180.

worm-like "markings indicating organic origin," because if the appearances above spoken of are but markings only, how could they shew a circular form on both the upper and lower surfaces? In the case supposed, there would be but the impression on the surface of one lamina, and a cast taken by the lamina superposed, not as in these flags, a circular body.

An eminent naturalist, to whom a description only was given, thought that the appearances in question might possibly be similar to some noticed by himself on the sea shore, when a strong wind off the land blows the loose sand on the top of the receding wave at ebb tide, enclosing the water within it, which, as it escapes, leaves the sand in the form of long, narrow, sinuous, ridges, depressed along the centre in consequence of the contraction caused by drying, in a manner similar almost to a spinal process; this, however, will not account for the specimens before us, and we mention it more for the purpose of shewing the conjectures that have been made, in order to clear the way for further explanation or full elucidation of the nature of such fossiliform appearances—this paper being more for the purpose of exciting inquiry than of answering the question raised.

A few further remarks occur to us which may help to throw light upon the subject. The formation in question must have been laid on the shore of a shallow deeply-indented bay—perhaps of a salt water lagoon, into which the tide had entrance. In the fine mud of this lake have lived and died the creatures whose motions are impressed upon the surfaces, and whose bodies still form part of the deposits. They lay in these beds in long folds in shape as in the engraving, shewing in some cases the appearance of a tail, but in no instance has any sign of a head been observed, except such a one as would answer to a species of the lamprey. The whole ridge is marked at every quarter of an inch with ribs, which have a very strong resemblance to the ribbing of plants of the *equisetum* family. The side view obtained by cracking off the slate, is as in the following figure; in both instances shewing a vermiform appearance.



A large specimen is deposited in the York Museum.



Richmond, Yorkshire, January 16th., 1851.

Reviews.

Twenty Lessons on British Mosses; or First Steps to a Knowledge of that beautiful Tribe of Plants, Illustrated by dried specimens. By WILLIAM GARDINER, A. L. S. (Third Edition,) Edinburgh: MATHERS.

Twenty Lessons on British Mosses: (Second Series,) By the same Author. London: LONGMAN AND CO.

It is indeed true that—

“The lowliest thing
Some lesson of worth to the mind can bring;”

and no one is more sensible of the fact than the field naturalist; for his chief delights are often found in the investigation of the commonest objects that strew his every-day path. The bulk of the world, however, know not the secret of obtaining happiness in the contemplation of such things, and can ill join in sympathy with his peculiar feelings. Among the numerous tribes which compose the vegetable kingdom, no one presents fewer points of attraction to the ordinary observer, nor appears so utterly unimportant in contributing to the welfare of mankind, or the support of the lower animals, as the Mosses. Humbler in their growth than every other tribe of plants; more modest in their hues; and as deficient in odour as they are in majesty of form and gaiety of colouring, they indeed possess slender claims upon the attention of the incurious, and even the scientific botanist is sometimes apt to overlook them in his enthusiastic admiration of nobler tribes. Linnæus in his ingenious classification of the principal families of vegetables into ranks analogous to those of human society, assigned to the Mosses that of “*Servants*, plants of the winter, *hungry*; occupying in immense numbers all the places relinquished by the higher tribes.” Certainly one who had not inquired into their structure and habits, would be disposed to assign them even a lower rank than that which the sagacious father of naturalists gave to them; and were we to rate them according to their economical value, we should consider them much inferior to the iodine-yielding sea-weeds, the ‘slaves’ of vegetation, as Linnæus styles them; or even the mushrooms, the ‘vagabonds’ of the vegetable creation, which, in the quaint words of the same Naturalist are “barbarous, naked, putrescent, rapacious, voracious,” although, by the by, they form a most important article of food to southern Europeans of all ranks.

To the inquiring eye of the Naturalist, however, these tiny fairy plants, the mosses, are replete with interest; and the investigation of their curious structure and economy has of late years employed many of the most talented and ingenious Botanists of Europe. In our own country too the Mosses have been recently gaining a certain amount of general favour, which is gradually increasing day by day; and at the present time the taste for collecting and examining them is by no means confined to the narrow circle of scientific botanists. To the two little works whose titles are prefixed to this paper, is due the merit of increasing to a considerable extent, the popular favour for these

tiny members of the vegetable kingdom; for the first series of Mr. Gardiner's lessons has already run through three editions, and we learn that there is every chance of the second series following the same satisfactory course. The attention of *cultivators* has likewise been attracted to the Mosses within the last year or two; and, assuredly, no one has seen a healthy greenhouse collection of these plants without admiration. The rich verdure of their beautiful tufts, variegated with their curious little capsules, small in size in some cases, but numerous in proportion, presents a most pleasing appearance, and at once arouses the curiosity of the observer to obtain some farther acquaintance with the history of this interesting family of vegetable beings. The exertions of the gardener in the cultivation of the Mosses are likely to prove advantageous to science, in throwing some new light on the economy of these obscure plants. It is remarked by a writer on this subject, that "by carefully watching the evolution of the various organs of particular individuals throughout the entire period of their existence, many important facts may be brought to light tending to elucidate some of the obscure points of muscological science, and calculated, in an especial manner, to give us more accurate views concerning these plants, and much new information concerning their general history, structure, and habits."² It therefore gives us much gratification to bring this subject before the notice of the readers of the "Naturalist," in the hope that some of them may be induced at this favourable season of the year, to undertake the culture of a few of the more interesting Mosses.

The two works of Mr. Gardiner now before us, are chiefly directed to the younger portion of the community, in the hope of encouraging a taste for botanical pursuits, in the rising generation, and calling their attention to the minute and common things of creation, which are so often passed by unknown, and despised, for very want of knowledge. Mr. Gardiner is, himself, a most ardent admirer of these beautiful little plants, and his enthusiasm is continually fed by an annual visit to the native haunts of the more interesting species, on the Clova mountains. He is therefore peculiarly well qualified for writing on such a subject, and his familiar and enticing style, so well exhibited in a more scientific work, the "Flora of Forfarshire," cannot fail to secure an attentive reader in every one who takes his little books in hand. In illustration of the way in which the subject is handled, we cannot do better than treat our readers to Lesson First of the first series:—

"MY DEAR YOUNG READERS,

You have, doubtless, in some of your rural walks, noticed the little Mosses, that, in the beautiful woods, cover the ground with a fresh green carpet, and adorn the tops of old walls with their lovely verdure. But, perhaps, you have not examined them attentively, nor are aware that there are so many kinds of them, all differing from one another in the structure of their various parts. It shall be my object, in these lessons, to lead you to a better acquaintance with them.

Possibly you may have often passed them by with little more than a heedless glance, thinking that because there were plenty of bright-coloured flowers, and stately trees around, to delight your

* G. Lawson, in *Gardeners' Magazine of Botany*, vol. 1.

eye, the humble Moss was scarcely worth your attention. Because things are small or humble, however, they should not be treated with contempt or carelessness. God made the little Moss as well as the glowing flower and lofty tree, and He has made nothing in vain. We may not know all the uses for which such tiny things were created, but we know some of them. We love what is beautiful, for God has implanted in our minds that love; and in the structure of the Mosses, as well as in that of many others of His smallest works, there is a very great deal of beauty. We love them, therefore, because it is natural for us to love what is beautiful. This love yields us true pleasure, which constitutes our earthly happiness, and ought to awaken our gratitude to the benevolent CREATOR, who has so kindly provided for our purer gratifications.

Mosses are found in all parts of the world; and in Britain, alone, there are about four hundred different kinds. Their places of growth are as varied as their forms. Some are found in the deepest valleys, by the sides of lonely streams, or within the spray-clouds of roaring waterfalls; others brave the tempests of lofty mountain-summits, or seek shelter among their shelving rocks; many court the shade of the forest, or nestle about the roots of the hedgerows; whilst various species seek the open fields or the sunny wall tops, or have their homes in the deep morass, or dwell on the sandy shores of the mighty ocean."

We reluctantly take leave of Mr. Gardiner, and his pleasant little volumes, by quoting a passage from his account of the Tree Feather-Moss, (*Hypnum dendroides*), in the Second Series of Lessons:—

"Even in the depth of winter, confined to our chamber by the war of the elements, when we look upon a specimen of this humble plant, we feel in a moment transported back to summer, with all its glories, and trees rise around us in their wonted magnificence—their rich verdure glistening in the warm sunlight, redolent of grateful odours and manifold harmonies. The avenue of lindens, with its sweet murmur of bees—the daisied lawn, and its fine old sycamores, horse-chesnuts, and walnuts—the orchard,

One boundless blush, one white empurpled shower
Of mingled blossoms, where the raptured eye
Hurries from joy to joy—

The fragrant birch-woods of secluded highland glens—and the lofty pine-forests that clothe the mountain sides;

Where the deer rustle through the twining brake,
And the birds sing concealed—

The gentle laburnum, shaking the dews of May from its golden tresses, over the blossoming thorns; and the mighty oak—the proud monarch of the woodlands, whose giant form has battled triumphantly with the storms of ages, successively rise to our view, and crowd our minds with the pleasant memories of the past, and glowing anticipations of the future."

The Royal Water-lily of South America, and the Water-lilies of our land—Their History and Cultivation. By GEORGE LAWSON, F.B.S. Edinburgh: JAMES HOGG. London: R. GROOMBRIDGE AND SONS. 1850. p. p. 108.

Mr. Lawson has given us not only a beautiful book for the drawing-room table, but he has also introduced to our notice, perhaps, the most elegant tribe of plants, which can be presented to the scientific eye of the Botanist, or to the more general observation of the traveller after the picturesque. A considerable portion of the work is occupied, most usefully and agreeably, by the Victoria Regina, that Botanical wonder of the age; not only is the plant itself described, but a full and most interesting account is given of the mode of its first successful cultivation in this country, at Kew; and afterwards of the first flowers which rewarded the care and skill of Mr. Paxton, at Chatsworth.

Every particular is given that can be of use to intending cultivators of this truly Royal plant, and the whole is handled in a pleasing style which cannot fail to render the book as welcome to the general reader, as to the scientific Botanist or the Horticulturist. The following suggestion, at page 78, is so good, and if carried out would so greatly increase the pleasure of examining tropical plants in this country, that we cannot resist giving it in the Author's own words:—

“We venture to suggest that a structure raised for the culture of the Victoria, instead of being merely a tank covered in with glass, and containing the solitary plant, might be rendered much more interesting by an attempt at the imitation of natural scenery, and the introduction of a few other aquatic plants to form a pleasing contrast with the Royal Lily. A small waterfall at one end of the house, verdant with moisture-loving plants, might be made to supply the pond, and give to its surface that gentle agitation so necessary for the healthy development of the Victoria. While the gigantic Lily occupied the chief portion of the pond, the shallow margins might be planted with various small aquatics, suitable for such situations; and if space were allowed, a few other tropical Water-lilies might be introduced into the deeper parts. It might obscure the light too much to run climbers up the rafters, and hang drooping plants from the roof, but under favourable circumstances this might be done to some extent, especially in the summer season, when there is abundance of sunshine.”

Farther on, at page 92, when speaking of our own White Water-lily, he says—

“A Water-lily pond should always be furnished with a plentiful supply of clear water, and while the supply is constantly kept up, it is equally essential that provision be made to run off the superfluous water regularly, at short intervals, in order to preserve the purity of the pond, which, besides being greatly advantageous to the Lilies, adds considerably to the beauty of the pond itself; and, on that account alone, repays the trouble and expense. In these times of sanitary reform, a piece of stagnant water should not be accounted the ornament of a pleasure ground, yet, strange to say, such ornaments are not unfrequently found where their existence might be least expected.”

We can safely recommend Mr. Lawson's Water-lilies as an excellent hand-book, for either the cultivators or lovers of this beautiful tribe of plants.

Natural History of the British Entomostraca. By W. BAIRD, M. D., F. L. S.
8vo. Ray Society, London, 1850.

A carefully written monograph, on any subject, is always valuable; but the Author, who, for the first time, brings together all that is known, and arranges it systematically in one work, is worthy of a double portion of our gratitude. This is the case with Dr. Baird, who has, in the beautiful and highly-interesting volume before us, collected, from various sources, a vast mass of facts, relating to those *Crustacea* which are termed *Entomostraca*, or shelled insects. Of these facts he has made good use, in the histories which he has given us of the different species; many of them have been discovered and first described by him, and many deeply-interesting records of the habits of others, as observed by himself, are recorded, and give good proof of an untiring zeal in the pursuit of a favourite study.

The general arrangement of the work is that of M. Milne Edwards, and

is well-adapted to the use of the student in this particular branch, who will have little difficulty in recognizing the *Entomostracan* he may find, by the aid of the admirable descriptions and plates. The work before us cannot fail to render the study of these interesting creatures much more frequent than it has hitherto been. Armed with this volume and a good microscope, the student may find 'endless amusement' and instruction in any locality he may reside in. Every pond or ditch, or even cistern, will afford him numerous species, the investigation of whose habits and characters will amply repay him for his labour in seeking them.

We cordially recommend this work to our readers, not merely as being the only work which embraces all the species of Entomostraca hitherto discovered in Britain, but also as being intrinsically good in itself; so that if the observer should chance to meet with a new species, he will have no difficulty in knowing that it is so. The study of the Entomostraca has not yet advanced to such a point as to forbid the hope of new discoveries, and we are sure that no one would hail the advent of a new Entomostracan with more pleasure, than the author of the beautiful work which is the subject of our notice.

Miscellaneous Notices.

Great Black Woodpecker (*Picus martius*.) Linn.—It is generally supposed by Ornithologists that this beautiful bird is a straggler in Britain. This, however, is not the case, for I have known it to breed and rear its young in several instances at Claremount, in Surrey. On one occasion I was anxious to see the contents of the nest, which had been built in a hole in a *brick wall*. The brick had been destroyed, from the effects of frost, and mouldered away. The bird had so completely replaced one of its own making of clay, with the exception of a small round hole for its use, it might have been passed by without being seen. My hand being much larger than the hole, and the clay having become so hard, I was obliged to use a knife to make the hole large enough. Having satisfied myself, I left the eggs. I was now anxious to see if the old bird, which had been watching my proceedings from the branch of a large *Cedar tree*, would forsake the nest or not, from my rough visit: I watched for a short time. Having made up its mind, it made a bold dart to its nest, returning immediately to the Cedar uttering a loud cry, which brought the male bird. They both visited the nest, and then disappeared: in a short time they returned, and began repairing the breach made, which was completed the same day, and hatched their young in quietude after. These birds, I am almost certain the same pair, made this hole their nest for three years: during which time I had ample opportunities of watching them. I have also met with the birds, but not their nests, in Dorsetshire—at Charborough Park, but in no other part of the county. Rennie is quite wrong when he says we have no evidence of its breeding, or performing its annual visits to this country. About five or six years ago, I saw a specimen in the museum at

Birmingham, and was assured that it had been procured in England; and I dare say that there are many more instances than mine on record.—*J. Mc' Intosh, Charminster, Dorset. Nov. 1st., 1850.*

On the incubation and rearing of the young of the Moorhen (*Gallinula chloropus*).—In confirmation of a curious anecdote, related by Mr. Yarrell, in his work on "British Birds," vol. iii, page 33, with regard to the incubation and rearing of the young of the common Moorhen, I observed the following:—In the year 1844, and in many subsequent ones, I had a pair of the above birds located in a small pond near my house; they became so tame, as, frequently, early in the morning, to be found, when the door had been left open, inside the hall picking up the crumbs from the floor. Upon being disturbed, they would quietly run out of the door, stop, look back with regret, and with a jerk of the tail commence feeding on the grass. They commonly bred three times in the season; the first brood being hatched early in June or in the last week in May: two broods followed the parents at the same time, and were fed by them indiscriminately. Upon the third brood being hatched, the first was driven away by the parent birds. The fact that I wished more particularly to mention is, that I constantly observed the young bird of the former brood, after receiving food from the parent, proceed with it in search of one of its younger relations, and with the greatest tenderness administer to its bodily wants, by giving to it the food intended for itself.—*Richard Pye Alington, Swinhope Rectory, near Market Rasen, Lincolnshire. Feb. 8th., 1851.*

Capture of Rare Birds.—On the 19th. of January, 1850, a beautiful specimen of the young of the Eared Grebe (*Podiceps auritus*) was captured in the parish of Thorsway, Lincolnshire: it was found by some labouring men sitting on the top of a straw stack, at least a mile and a half from any water, and knocked down with a snow-ball; it lived for two days in the possession of the Rev. Edward Cove, of Thorsway, and fed upon some barleymeal which was offered to it: it was found dead on the Tuesday morning. During the same winter, a female specimen of the Common Scoter (*Oidemia nigra*) was shot by the Rev. W. Marsden, of Louth, on a small stream quite in the town, and at least twelve miles from the sea. The same gentleman also captured a specimen of the Red-necked Phalarope (*Phalaropus hyperboreus*) near Louth. The above specimens are all at present in the possession of Mr. Marsden. Many years ago, a specimen of the Avocet was shot by Mr. Harneis, of Thorganby Hall, feeding on the edge of Croxby lake, Lincolnshire; and a specimen of the Peregrine Falcon was shot by his son, (and now in his possession) in the parish of Hawerby. (vide page 90, "Morris's British Birds.") I also saw a specimen of the above noble bird, about six weeks ago, in this neighbourhood. The Dotterel, (*Charadrius morinellus*) once so common on the north wolds of Lincolnshire, is now very rarely seen, though it still continues to visit some land, newly enclosed by my brother, Mr. Pye, from the sea, in the parish of North Summercoats, in small numbers, twice a year; going to and returning

from their breeding ground. A wild Swan located itself on Croxby lake during the whole of the winter of 1849-50; and on the same piece of water, I am told by a friend, that a remarkably fine specimen of the Northern Diver was shot in his presence, and preserved. I should doubt his correctness about the species, but hope to have an opportunity of seeing it in a short time, when I will forward a more certain account.—*Idem*.

Early Nesting of the Common Thrush, (*Turdus musicus*), near Ripon.—On the 19th. of March last, and during the severe weather prevalent at that time, I had brought to me the nest of a Thrush, complete, with two eggs. Its early production induced me to examine and compare the same with a nest and eggs taken in the summer time, some years back. I found a considerable difference, as follows:—The eggs taken on March 19th. measured one inch and one-sixteenth in length, and six-eighths and one-sixteenth of an inch in diameter. Those taken in the summer measured one inch and a quarter long, and seven-eighths and one-sixteenth of an inch in diameter.—*T. Stubbs, Ripon, January 20th., 1851.*

This is a very curious circumstance, and we are much obliged to Mr. Stubbs for pointing it out. It probably is an instance of checked development, in consequence of the severity of the weather; an effect which we should not have expected to have manifested itself in this way.—*B. R. M.*

Nest of the Kingfisher (*Alcedo Ispida*).—There have been so many different opinions respecting the materials of which the nest of this bird is formed, that the following account cannot but interest your readers:—A highly-respectable miller residing near Kiveton Park, assures me that he had a nest last year in his mill-dam, which he unfortunately broke with his spade in endeavouring to dig it out: it was of an oval form, and composed entirely of fish bones:—Bewick in vol. ii page 21, states that he had a nest sent him “made entirely of small fish bones, cemented together with a brown glutinous substance.”—I must say even this does not convince me; for I have often searched the holes from which I have seen the birds fly, but never could discover a nest:—*Samuel Hannaford Jun., Kiveton Park, Rotherham, Feb. 7th., 1851.*

A Piping Thrush (*Turdus Musicus*).—An uncle of mine had a Thrush which he brought up from the nest, and by constantly playing on the flute in the room where it was kept, the bird was able in a very few weeks, to whistle with great accuracy three or four tunes. Unfortunately a cat got at him one day, and so severely mangled the poor bird, that it died very soon after; but even whilst dying, it commenced one of the tunes in imitation of church bells.—*Idem*.

A Cuckoo (*Cuculus canorus*), attacked by small birds.—Between eight and nine one evening in June last, I saw a female Cuckoo flying towards a plantation at Shenriers Bridge, near Totnes, Devonshire, where I had frequently

heard her fine clear liquid notes, pursued by five or six swallows, which pecked at her as she flew by; apparently much to her annoyance, for she tried hard by ascending and descending, to escape from her tormentors.—*Idem*.

Hooded or Royston Crow, (*Corvus cornix*.)—October 11th., 1850, I saw a large flock (say twenty,) in Kiveton Park.—*Idem*.

Nest of the House Pigeon.—Mr. Rennie in his very interesting little work on "Bird Architecture," page 119, says that this bird *never uses twigs* in the formation of its nest. I grant it is not common, but last summer I watched two pairs, very closely, in order to ascertain. They were kept in a pigeon-house in a farm-yard where hay, straw, and twigs lay scattered about in great abundance. The hen bird remained in the hole hard at work, whilst the cock kept her plentifully supplied with *small straight twigs*, carefully trying each with his bill before carrying it to his mate. These he deposited on a ledge outside the house, for the hen to use at her convenience. Occasionally the hen would leave the nest, and the cock would walk in and take a survey. This continued for nearly two hours, without intermission. One thing I particularly noticed which would seem to disprove Mr. Rennie's assertion, that the male bird *rejected straw for twigs*; more than once he took a piece of straw into his bill, but dropped it again immediately.—*Idem*.

Nesting of Rooks, (*Corvus frugilegus*.)—In the work on "Bird Architecture," page 162, Mr. Rennie says, "Schwenckfeldt remarks that they commonly prefer large trees planted round cemeteries and churchyards; but amongst the numerous rookeries with which we are acquainted, *not one occurs in such a locality*;" and Mr. Jenyns and Bewick seem to think they prefer noisy places to more retired ones. Nearly all the rookeries I have seen in Devonshire are in *retired* places, and *very many of them in or near churchyards*. I will only mention a few in my own immediate neighbourhood, as having fallen under my notice: Totnes, Devonshire—There was a very large rookery on the elm trees in the churchyard for many years; Dartington, Devonshire—Close by and in the churchyard; Follaton, Devonshire—Near catholic chapel; Sharpham, Devonshire—In a wood overhanging the river Dart, adjoining a heronry.—*Idem*.

Curious act of the Martin, (*Hirundo urbica*.)—In the summer of 1849, a pair of Martins built their nest in an archway at the stables of Woburn Abbey, Bedfordshire, and as soon as they finished building it, and had lined it, a Sparrow took possession of it, and although the Martins tried several times to eject him, they were unsuccessful, his hard beak being too formidable an obstacle for the tender beaks of the Martins; but they nothing daunted, left his lordship (the Sparrow,) in full possession, and then flew to scour the neighbourhood for help, returning in a short space of time with about thirty or forty Martins, who went or rather flew in a body to the Sparrow in the nest, and having dragged the unfortunate culprit out, took him to the grass-plot opposite, called the circle; and there they all fell, pell mell, on him and killed

him. I have heard of Martins stopping a Sparrow in their nest, but I never heard of such a circumstance as this before; but this was related to me by an eye witness a day or two after the occurrence took place.—*George B. Clarke, Woburn, Beds. January 15th., 1851.*

Proceedings of Societies.

Yorkshire Naturalists' Club, February 5th., 1851.—E. CHARLESWORTH, Esq., in the chair.

DR. MORRIS mentioned the occurrence, in the York market, of several specimens of the Bar-tailed Godwit, (*Limosa rufa*,) and of the Gray Plover, (*Squatarola cinerea*,) which were brought from near Perth. They but rarely make their appearance in York.

MR. GRAHAM exhibited specimens of several of our rarest British birds, which had been sent to him to mount, from A. Strickland, Esq., of Bridlington.

MR. CHARLESWORTH exhibited a fossil Saurian phalangeal bone, from the cabinet of Mr. Ripley, of Whitby, remarkable as coming from the lias, and yet presenting, in its massive proportions, more analogy to the corresponding bone in the terrestrial extinct Saurian reptiles, than to the species hitherto known in the lias formation. Mr. C. regarded the discovery of this fossil as a most important addition to the extinct fauna of Yorkshire; and he particularly called attention to the skilful manner in which the intensely hard investing matrix of ironstone had been removed from the surface of the bone, by Mr. Dew, of the British Museum.

MR. O. A. MOORE exhibited some fine specimens of minerals from South America, namely, native copper, in three states, from the north of Chili; native silver; native gold in quartz, from Illapel, in Chili; and some fine specimens of nearly pure gold from California, one weighing above one ounce. Mr. Moore then proceeded to read some remarks upon the supposed transmutation of species, which had been drawn up at the request of some members of the club, on the question being raised by Mr. Smallwood at one of the previous meetings. He commenced by disclaiming any intention of doing more than giving an abstract of the principal evidence on this subject, deduced from ancient and modern writers. Of these he gave quotations from Pliny, Virgil, Plautus, Theophrastus, Galen, Matthiolus, Thomas Johnson, Parkinson, Ray, Morison, Olaus Wormius, and others of the older writers; and illustrated the same by the observations of Dr. Weissenborn, the Coburg Society, Lord Arthur Harvey, Captain Herriek, Sir R. Phillips, Mr. Rhodes, of Nawton, the Author of the "Vestiges," and others in modern times. The experiments of Messrs. Sidebotham and Watson were adduced on the other side as opposed to this theory. Mr. Moore considered, from a careful examination of all the evidence, that sufficient was adduced, with regard, *e.g.*, to the passage of oats into rye or barley, under a peculiar system of treatment, which was fully detailed, to warrant further investigation; and that the instances of two kinds of grain occurring on one spike, as shown by T. Johnson, Wormius, and Captain Herriek, were singular, and deserving of peculiar attention.—Mr. Baines mentioned a similar case, as quoted by Dr. Lindley, in a horticultural journal, and a discussion followed, in which Messrs. William Matterson, Charlesworth, Smallwood, Dr. Morris, and others took part; referring not only to this subject, but also the general question of specific distinction.—At the suggestion of the Chairman, a committee, consisting of Messrs. Baines, Smallwood, William Matterson, Burnett, and Moore, was appointed to inquire into the subject, and make experiments, with a view to reporting on a future occasion.

Obituary.

Died January 27th. 1851, JOHN JAMES AUDUBON.—It is with sincere regret that we announce the death of the celebrated Audubon, at the advanced age of seventy-six, at his residence in New York. His "American Birds" will however remain a perpetual memorial of his perseverance and accuracy of observation; there is a certain freshness in his descriptions, that carries you irresistibly along with him, and places the object treated of personally before you; to us the whole work has always had a greater charm than the most piquant novel, from the conviction that it was a true history, and that the *lives* of the birds had been noted down in their own wild and solitary haunts. Ornithological science has sustained a severe loss by the death of Audubon.

ON THE MOOR-HEN. (*GALLINULA CHLOROPUS*.)

TO THE EDITOR OF THE NATURALIST.

Sir,

ALTHOUGH forty years since I was a steady contributor to the periodicals, for many has the amusing occupation ceased; yet am I now allured by the seductive aspect of your new publication, and especially by the appearance of one of your 'Miscellaneous Notices,' to yield once more to the propensity to scrawl. I advert to that on the "Incubation and rearing of the young of the Moor-hen."

Not very distant from my house, and adjoining my lawn, is a pond, which, were it dignified with the name of a little lake, might receive not an inapplicable appellation. Its extent is nearly half an acre, and in its widest part is an island, sheltered on the western side by a dense row of alders, willows, and rushes; while on it are laurels and rhododendrons, with some trees of twenty years growth; at the western extremity is a small dense covert of alders, osiers, elders, and laurels. It is divided from a small rapid river or mountain stream, by fertile meadows; while within a few miles lies, on the northern side, the elevated and bleak district of Dartmoor—a site more propitious to the colonization of waterfowl, more especially from its maritime neighbourhood, and its close proximity to several other small pieces of water—one indeed in an adjoining grove of nearly equal size with itself, can scarcely be described. These ponds are of my own formation; and no sooner were they complete, than a desire to see them peopled by feathered colonists arose; and not unfrequently meeting with Moor-hens while Snipe shooting in my meadows, I assumed they would be the first occupants. At length I rejoiced in the realization of my wishes. A pair appeared, built their nest on the sedgy brink of the eastern side of the island, and were an object of general interest to the passers by. For three or four years there were regular and undisturbed incubations, but no increase. By turns the female and male, with his glowing crimson bill, watchfully peeping over the nest, were the objects of universal admiration; till an inference arose that the eggs or young were destroyed by rats or snakes, (*natix torquata*), which I have seen there in pursuit of duck's eggs, or that some other vermin frustrated my hopes. At length, in the lower branches of a stunted silver fir, about three feet from the ground, the cautious pair constructed their 'procreant cradle;' and the eastern embankment being sufficiently elevated for their inspection, they were anxiously gazed at by the passers by. That first incubation was productive, and its consequent increase has been enormous, although its limits are difficult to be determined, by reason of the numbers annually driven off by their petulant jealousy and unceasing strife. The established colony of some years has consisted of about thirty pairs; and the number of successive broods have been three; and, I fancy, sometimes four—the general produce of each being four and sometimes five, although in

one or two instances I have seen eight.* This, however, is not easily ascertained, as I suspect the broods unite, and I have seen them divided by the cluck of the respective parents. Though for some years I kept a Zoological Register, I have unaccountably omitted to note the appearance of the first brood, which, however, I am disposed to believe, is visible early in April;—not as your Correspondent states, late in May or early in June. My observations of the approaching spring shall be communicated to you.

According to this ratio of propagation, the increase, but for some unknown exterminating cause, would equal that of the most prolific animals; yet the amount with me seems to have attained its probable maximum. My keeper keeps a vigilant eye on Hawks, that attack the old, and crows and magpies, that, I have reason to think assail the young ones; and there cannot be much spoliation from that source; I therefore conclude that although more are not found in the neighbourhood than formerly, they are not destroyed, but dispersed. The Redbreast himself is not more instinctively pugnacious; and their belligerent disposition is not limited to the season of love. My keeper has for years urged me to destroy the splendid old cocks, but I have regarded the savage proposal as unnecessary as it is revolting. Nay, so free are they from disturbance, that the report of a gun in an adjoining rookery, invariably produces the simultaneous shriek and splash of alarm.

Their spontaneous domestication appears to exceed that of all feral creatures; they not only associate with the tame Ducks, but do not seek to avoid the approach of man; a peculiarity of which I witnessed an extraordinary instance a few years since at Halberton, a village four miles east of the town of Tiverton. I there saw them in considerable numbers, in front of a large and respectable farm-house, within a well-watered court, the Moor-hens and poultry feeding promiscuously on the distributed grain; and, so far as my memory serves, they seemed to be regarded as the equally recognised tenants of the pond.

Mine have a few occasional visitors in severe winters, in Wild Ducks, Wigeon, and Teal. Twice in the autumn have a pair of Coots for a few weeks harmonized with the established occupants of the water: and once I and some around me fancied we perceived an amicable interposition of the Coots, to disperse a furious and destructive assemblage of fighting Moor-hens: that their interference had such effect, I do not doubt; but the pacific trait seems to have been too rational and benevolent for unreasoning creatures. I mention this almost incredible occurrence, as Coots are said to be hostile to the society of Moor-hens, and drive them off.

Let me add that the sacrifices of kindness are not incompatible with the impulses of instinct; your correspondent is perfectly correct in his remark, that the youngest brood is affectionately attended to, and fed by the progeny immediately preceding, of the same parents. There is a kindness in their deportment which cannot escape the dullest eye, or the most callous heart.

* Bewick's information is neither specific nor correct.

Their only constant associates are two or three pairs of Dobchicks, or Little Grebes, (*Podiceps minor*), of Latham, that breed in the island; on which, should I find at any time your interesting pages experience the Homeric nod, I may venture to proffer a few observations.

J. C.

Black Hall, Devon., 4th. March, 1851.

HABIT OF THE RING-DOVE—WOOD PIGEON. (*COLUMBA PALUMBUS*.)

BY THE REV. RICHARD PYE ALINGTON.

EVERY person who has travelled over the north wolds of Lincolnshire, must have remarked the vast extent of larch fir plantation that ornaments, or as some people say, destroys the beauty of that wild and fertile district. Nevertheless, to the ornithologist it presents many attractions. Varieties of birds here abound—Titmice, Creepers, Gold Crests, Jays, Hawks, and, particularly, it is the constant abode of that fine species of Dove, the Wood Pigeon, (*Columba palumbus*.) But the admirer of the feathered tribe is not alone in his enjoyment; the entomologist also may find his amusement; various species of Papilionidæ may be taken flitting over the green sides that intersect these plantations, and, hanging from the branch of the larch, (frequently at some height from the ground,) may be seen the nest of a species of wasp, (*vespa borealis*,) called in this neighbourhood the ‘Scotch wasp.’ I have procured this nest when out of reach, by a simple process—striking the stem of the tree, the inhabitants fly out, when, shooting off the branch, (beware, for a solitary fly will sometimes rush upon the intruder,) down comes the nest, leaving the astonished insects at the top of the tree. But to return to my subject. Early in September the Ring-Dove begins to collect, and the flocks keep increasing until Christmas; at this season, I speak within bounds when I say, thousands may be seen together; and if a snow-storm or a sharp frost is about to set in, their numbers become quite astonishing. Early in the morning they leave their roosting-grounds, and settle upon the young clover lays; and should the barley, as they say, have been ‘clean’ raked, do infinite damage to the farmer by destroying his green crop; but, in the early part of the season, the pigeons feed almost entirely upon grain picked up from the stubbles—a good handful may be taken from one bird—and, as I believe they feed three times a day, what an incredible quantity must be lost by the farmer, to satisfy such vast multitudes!

They are now good for the table, but as winter draws on, they commence feeding upon the leaves of the turnips, which gives them a rank flavour; but this may be much obviated by cropping the bird immediately upon its being killed: the leaves are generally cut into small (three quarters of an inch,) square pieces. I have met with persons who dispute their feeding upon the bulb of the plant, but any one, during severe weather, may find the turnips pierced in many places,

and, in some instances, scooped out by them; into these holes, when the thaw commences, the wet settles, and the plant rots; and hundreds of turnips may be seen in the spring-time destroyed in this way. As soon as twilight commences, the various flocks begin to collect, and settle in numbers upon the larch firs; when they arrive at their roosting-ground, they not unfrequently take two or three turns high in the air, and then the whole flock will commence dropping, with closed wings and a rushing sound, upon the trees: they generally spend half-an-hour or so on the very topmost branches, their vinous breasts glittering in the setting sun. As darkness comes on they retire to the lower branches to roost; as each bird descends, a loud flap of the wing may be heard—an exciting sound to the expectant gunner—now is the time for him: the increasing darkness prevents the birds leaving the wood, and many may be secured during the last half-hour of the lingering light. But during the day their extreme shyness renders it a most difficult task to get within shot. In the clear, cold, frosty days in winter, they may be heard at a considerable distance—their wings making a whistling sound. As spring comes on, their numbers, in this district, rapidly decrease, and they leave (where they go to I know not,) to breed—a very few to all appearance remaining here. These now desert the woods, and very often approach the garden to feed upon the new-sown pea.

Inhabiting, in pairs, the old ashes and elms around dwelling-houses, here the male may be heard early in the dewy mornings, cooing to his mate; and, during most part of the day, he may be observed rising with a loud flap of the wing, several yards above some ancient ash, when spreading his wing, he will gradually descend until he settles upon the nearest tree. Should one not be at hand, he will, cooing all the time, continue (a beautiful sight,) rising and falling several times. During incubation they become very tame: I have seen the young domesticated and walking about a cottage floor; and an old dame told me, (upon my doubting that any would continue domesticated,) that she had kept one several years. They frequently make their slender nest in the centre of so thick a hawthorn bush, that the old bird when disturbed, has to make a great fluttering, (to the loss of much of her plumage, for at all seasons the feather is very loosely attached, particularly the upper tail coverts,) in her attempts to force her way out.

They lay two eggs, which are white, and delicious eating, so likewise are the young birds. As soon as the young can fly, they again begin to collect. They are birds of great power of flight, and pass from one locality to another at a vast height.

THE MISSEL THRUSH. (*TURDUS VISCIVORUS*.)

BY THE REV. RICHARD PYE ALINGTON.

EVERY one is well acquainted with the instinct shewn by various species of animals for the protection of their young; among others that of many of the feathered tribe, carrying away from their nests the excrements of their offspring.

The fact that I now relate happened some years ago, and from the situation in which the said Thrush places its nest, and the wildness of the species itself, I am afraid I am not likely to be favoured again with an opportunity of so closely observing its manners.

The nest of the Missel Thrush, to which I now allude, was placed in a lime tree some way from the ground, but so near to the house that I could, from the upper window, look down into the nest, not six feet from me. When the parent bird had fed the young, four in number, it invariably sat on the edge of the nest and received, as deposited, the excrement of each of its young in turn, and then and there devoured it with the greatest apparent gusto—that is to say three, for the remaining one was carried away to a neighbouring tree, always the same, and to the same branch; and I suppose, as I could find no remains, that it likewise was there disposed of in the same way. When the other parent bird arrived, (if immediately,) it always remained on the nest, seemingly half-asleep, until the young again wished to perform the office of nature. *Query?*—Was this solely for the *protection* of the young, or may it not have rather been a *provision* of *nature*, for the *sustenance* of the parents while they fed their children on the more delicate viands?

Swinhope Rectory, near Market Rasen, Feb. 8th., 1851.

CURIOUS HABIT OF THE COMMON LINNET, (*LINOTA CANNABINA*.)

BY THE REV. J. PEMBERTON BARTLETT.

THE following anecdote respecting a curious habit of the Common Linnet, which fell under my notice while walking one day on a common, may prove interesting to the readers of "The Naturalist."—

I had just passed a low furze bush, when my attention was attracted to a bird, which fluttered and fell a few feet before me, as if in a fit. My first impulse was to step quickly forward and pick it up—the former of which I did; but when within about two feet of it, it rose and fluttered on a few yards further. Thinking it was wounded, I again attempted to pick it up, when it again appeared to receive a fresh amount of strength, and made another intoxicated kind of progress for a few yards further yet. This it did several times, and I began to doubt if I should catch it after all; when at last, to my great joy, just as I was near enough to '*put some salt on its tail*,' it rose up and flew away, twittering (laughing at me as I found afterwards) like the strongest and pertest Linnet in the world! At first I was puzzled to account for its very eccentric behaviour, but it struck me that, possibly, like the Partridge, it might have performed the antics described, to decoy me from its nest. I therefore returned and searched the furze bush, where, sure enough, I found it with five eggs, which were still warm from the heat of that body, which the faithful little bird had exposed for their preservation, for had I been so

disposed, I could without difficulty, have knocked her down with my stick.

I do not know if this trait in the character of the Linnet has been recorded: it was new to me, and it delighted me much.

Fordingbridge, Hants, February 3rd., 1851.

ON THE RESUSCITATION OF FROZEN FISH.

TO THE EDITOR OF THE NATURALIST.

Sir,

IN that useful and valuable Magazine, "The Annals and Magazine of Natural History," for the month of November, 1850, appears a note on the "Resuscitation of Frozen Fish," by Professor O. P. Hubbard; and the January number, for 1851, of the same Magazine, contains another note by P. L. Simmonds, Esq., on the same subject. That this is no new or uncommon occurrence, the following quotations from the "Gentleman's Magazine" for 1807 will shew:—The writer, a Dr. Young, says, "While in North America, I think it was about the year 1757 or 1758, I came to the knowledge of a very odd phenomenon, which I am not sure is generally known to naturalists. The fact is as follows, namely:—If fish are taken alive out from below the ice, in lake or river, during an intense frost, and thrown upon the ice, or among the snow, so as to freeze immediately; although they are seemingly dead, and so stiff as to break short upon trying to bend them, yet you may bring them to life again, or rather into a state in which they will perform all their animal motions, as perfectly as before they were frozen; the supposition is, they are not dead, but the functions of life are only suspended; and this is done by putting them into cold water. When I was told the fact at Albany, originally a Dutch settlement, I was rather incredulous, and enquired among the Dutch people separately, and found that they all agreed in the same story; however it was not long before I had ocular demonstration of it. Some of the Mohawk Indians brought some fish to Albany to sell; they were caught in the Oneida lake. The woman of the house, in which I was quartered, bought a bunch of them, and hung them up inside of the chimney. I soon observed those fishes that were next the fire, began to move first, then those in the middle of the bunch, and those on the outside last of all. The Indians were three or four days on their journey before they arrived at Albany. The Dutch people say you may keep fish frozen and seemingly dead, not only a few days, but weeks; and when you want to bring them to life, put them into cold water, or into an air where it barely thaws, for, if they are put into warm water, or brought into too hot an air, they will putrefy." Dr. Young again says, "I have been told by a gentlemen from Switzerland, that it is a custom in that country, in changing fish from one pond or lake to another, to put them into a tub of water, and when the water is frozen, they then transport them in the greatest safety, without being beaten or bruised one against the other, or against the side of the vessel."

To this we will add, from our own knowledge, that fish, after having been frozen so stiff that they might have easily been broken asunder, have, by immersion in cold water, regained their usual functions.

During our residence on the continent, not far from Paris, during the severe winter of 1837-38, we had a quantity of Gold-fish (*Cyprinus auratus*) in small shallow tanks: the water and fish became one solid mass of ice, which we had broken up in pieces, so as to injure the fish as little as possible, and placed in tubs in an out-house to thaw, which was done in the course of two days. We had the satisfaction and pleasure of seeing our little pets swimming about, in what had only a short time before appeared their grave. Some of the lumps of ice containing a fish we had thawed before the fire, but the change in all cases proved too sudden, and the death of the animal was the consequence, after lingering for some time. How long they would have lived in this frozen state, I do not know, having been more anxious to recover those frozen, than to ascertain the time they would live.

Charminster, Dorset, Feb. 18th., 1851.

J. MC'INTOSH.

SOME REMARKS ON THE ANIMALCULÆ
OCCURRING IN A DROP OF WATER TAKEN FROM
ASKHAM BOG, NEAR YORK.

BY BEVERLEY R. MORRIS, M. D.

THE object which I have in view in the following observations, is, not to bring forward anything new, or even to place anything already known, in a new light; but, simply to invite the attention of such of my readers as have hitherto paid little or no attention to microscopic research, to the extensive and deeply-interesting world, which the microscope, as now improved, opens to us. I will not enter on the subject by going into the details of the classification of the Animalculæ which I intend to notice, but shall content myself, in this instance, with shewing, in somewhat of systematic order, the results of my observations on a single drop of water, taken on the 28th. of June, 1849, from Askham bog, near York. It may not be amiss, for the benefit of those who are only commencing the use of the microscope, to detail the steps, usually had recourse to, in examining the water of any stagnant pond. In selecting the water, it is best to take it from the side of the pond towards which the wind is blowing, for the simple reason, that any light matter on which the Animalculæ may be feeding, as well as the Animalculæ themselves, are driven there by the wind. At the same time a small portion of duck-weed, or other water-plant growing on the surface, should be placed in the bottle. If any decaying straw or blade of grass be perceived floating about in the water, it will be well to secure it, as it is frequently very rich in microscopic forms. The water should be kept in wide-mouthed bottles, as a certain amount of air is necessary to keep the Animalculæ alive. I need

scarcely observe, that the corks must be taken out as soon as the water is brought home. It is best also not to keep the bottles in the full light of the sun. A label should be affixed to each bottle, with the date and locality from whence the water was procured. This is very necessary, for each bottle may afford employment for several weeks, and as water from different ponds will probably be procured, much confusion would otherwise result. In preparing the water for examination by the microscope, the plan I usually adopt is, to take a piece of flatted window glass, three inches long, by one or one and a half wide, according to the size of the object to be examined. Having then placed on the glass a small portion of the duck-weed, or grass, a single drop of water is to be added, and a piece of paper, having a hole cut in its centre, being placed on the glass, the whole is to be covered with another plate of thin glass. These glasses being now placed under the spring clips on the stage of the microscope, will be kept in position, and the paper will prevent the glasses crushing the objects. Should the microscope not be provided with a spring clip, it may be easily added, or some equivalent substituted. It is seldom that more than a single thickness of paper is required, unless for the examination of some of the *Entomostraca*, which, being of considerable size, often require several thicknesses to prevent crushing. I may just add that the water is kept in its position by what is called capillary attraction, and is not touched by the paper.

We now come to the actual investigation of the contents of the drop of water. In doing this, the best way is to commence with a low power, say an inch, which will magnify about sixty times, or at most half an inch, which will magnify, say two hundred times. In saying that an object is magnified sixty, or two hundred times, we do not perhaps obtain a just idea of the fact, which is, that it is made sixty, or two hundred times *longer* and *broad*er, or in reality, that it is magnified three thousand six hundred, and forty thousand times respectively. This gives you an opportunity of taking a general survey of the whole field in a short time; and should there be nothing of interest on the slide, you can change the drop, and try again. Should, however, any matter of interest appear, you should move it as near the centre as possible, and then change the inch power for a higher one, say quarter of an inch. If the object was fairly in the centre of the field, you will now probably find it somewhere in sight; if not, you must move the slide about till you find it; a slight movement will generally be sufficient.

Having thus disposed of these preliminary matters, I will now as briefly as possible describe the various living forms observed in the Askham bog water last June; but first, I may remark that the whole of the Infusoria may be divided into two great classes—

First.—The *Polygastrica*, from their presenting the appearance of having numerous small stomachs connected with the intestinal canal. The Animalculæ of this class are of an apparently less complicated structure than those which compose the Second division, namely the *Rotifera*, or Wheel Animalculæ,

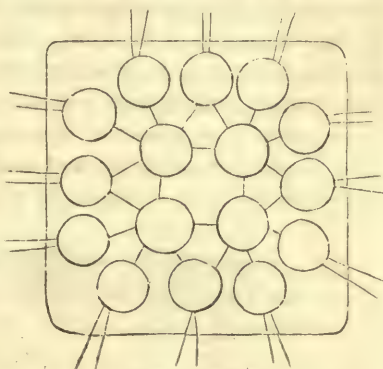
so called from their possessing certain appendages, which, when in motion, give the appearance of wheels turning rapidly round. Many of these creatures possess eyes, and the teeth even may be shewn distinctly by the microscope, and present a very curious and interesting sight when the animal is feeding; the action of grinding the food being easily observed.

With these few general remarks I proceed at once to those of the Polygastric division, which are lowest in the scale of animal life, namely, the *Monads*. Of the more simple forms of *monad*, innumerable individuals were observed. These, even with a high magnifying power, such as six hundred diameters, appear to be exceedingly minute, their usual size not being greater than one-tenth thousandth of an inch in diameter.

The second family, *Cryptomonadina*, had its representative in *Trachelomonas volvocina*; at least if not referrible to this species, I do not know where to place it.

The next observed form was a very beautiful and curious one, representing the third family, *Volvocina*, the Breast-plate Gonium, (*Gonium pectorale*.) Another member of this family, the *Pandorina morum*, was also present. It will be noticed that these creatures present the appearance of compound monads, as if made up of many individuals.

Several forms of the fifth family, the *Closterina*, were also seen, as were also numerous individuals of the tenth, the *Bacillaria*.



Gonium pectorale.

We next come to family thirteen, *Vorticellina*: the most imposing of this family, seen in this drop, was a *Stentor*, but which species I do not know: the movements of this creature in the water are very remarkable, and well repay the trouble of an

examination. Three species of true *Vorticella* were also present. These little bell-shaped Animalculæ are each provided with a long stalk, very



transparent, and hollow, which carries inside it a dark muscle, by which the creature, at its pleasure, (and that is very often) contracts itself in an instant, and its stalk as well, into a very small compass, so as to escape danger. I believe we also observed *Trichodina tentaculata*, but the drawing made at the time was hardly accurate enough to enable me to decide with any certainty.

The fifteenth family was represented by *Tricodiscus Sol*. There were two or three others which I imagine should be referred to this family, but, as in the case of the last, the drawings were too imperfect to allow me to give them a name.

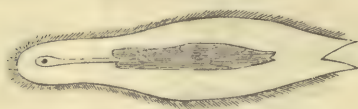
In *Kolpodea*, the twentieth family, the very curious *Amphileptus fasciola* was observed. Its singular leech-like appearance and motion are sure to attract notice.



The last family of this group, of which an individual was seen, was *Oxytrichina*, the twenty-first; of this one specimen of *Stylonychia lanceolata* was recorded; making altogether of the *Polygastrica*, at least fourteen species, belonging to twelve genera, distributed among eight families, of the twenty-two into which this class is divided. There were several others whose movements were too quick to allow a drawing to be made, and which, consequently, have not been recorded.

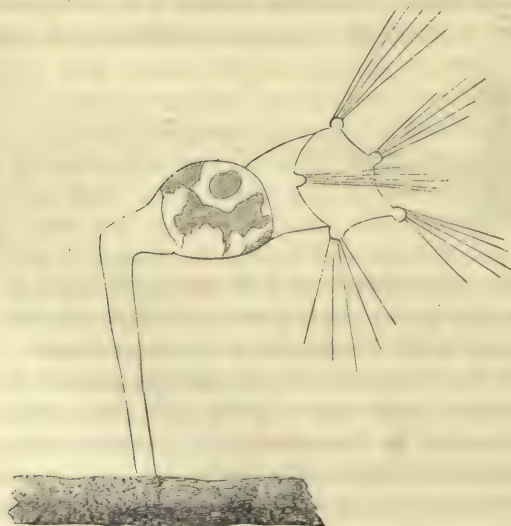
We now come to the *Second Class*, the *Rotatoria*, or Wheel Animalculæ. These creatures, as I before observed, are much more highly organized than those we have just been considering; but, of course, there are various gradations in the complexity of their organization, as there was in the *Polygastrica*, and we will commence, in this case also, with the consideration of those which are lowest in the scale of nature.

The number of species of this class, observed in the Askham bog water, was, as might be expected, not very numerous; representatives, however, were present of four out of the eight families into which the *Rotatoria* are divided.

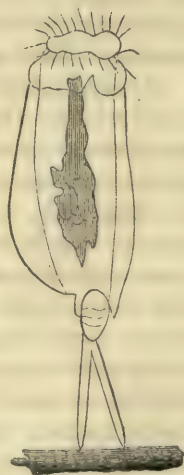


The first family, *Ithyridina*, appeared in the person of *Chetonotus larus*. This curious creature is unprovided with eyes, and swims by means of the *cilia* set round its body.

The next family, of which an individual (probably *Floscularia ornata*,) was observed, was the very beautiful and interesting one of *Floscularia*. Its long



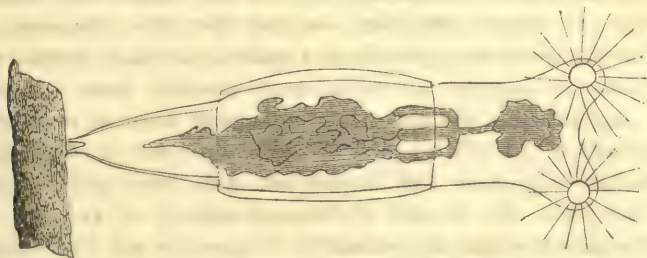
Floscularia.



Salpina mucronata.

cilia, set on five or six projecting lobes, spread in the most elegant manner. It usually has a transparent tubular case attached to the plant on which it is fixed, but in this case it was not seen. We now come to the more complex Rotifers; and I will first call your attention to the family *Euchlanidota*, two genera belonging to which were observed: first, *Salpina mucronata*. This creature is provided with a transparent case, within which it is able to draw itself at pleasure. Like all this family it is very voracious, and its teeth may be seen constantly in the act of grinding up its food. It is very active.

Metopidia lepadella was also present, and in habits much resembles the *Salpinx*. The last family observed was *Philodinea*, which embraces the true Wheel Animalculæ. They are all very extraordinary creatures: the body may be divided into a head and tail, and a central portions, into which the two former may be more or less drawn, much as the portions of a telescope slide one within the other. The



only individual of this family present was the *Rotifer vulgaris*, or common Wheel Animalcule. The currents of water, set in motion by means of what are called the wheels, are wonderfully extensive, and are easily visible by the microscope. The teeth and digestive canal of this Animalcule are readily seen. Eyes are also present; and even blood vessels have been observed. I may here mention, that in addition to these *Infusoria*, a single individual was present belonging to an altogether different order, namely, the Crustacea. It turned out to be the young of *Cyclops quadricornis*, referrible to the *Entomostracan* division of the Crustacea. The difference between the young and adult *Cyclops* is so great, that no one, unacquainted with the strange changes these creatures undergo, would recognise them as having the same origin; the only common point of similarity being their each possessing only one eye.

As I propose, on some future occasion, offering some remarks on the *Entomostraca* of this district, I will leave what may be said on these most interesting creatures to that time. I have now shortly touched on the living creatures observed, on a single occasion, in one drop of water, amounting in the *Polygastrica*, as I before stated, to fourteen species, representing twelve

genera, divided among eight families, out of the whole twenty-two. In the *Rotifera* amounting to five species, representing five genera, and four families out of eight into which the *Rotifera* are divided; and in addition, as a make weight, I have thrown in one *Entomostracan*, making in all twenty minute creatures, some of them only the representatives of several hundred others of the same kind existing in the one drop; all endowed with life, some of them highly organized; all of them capable of entering into all the enjoyments of their little world, and each performing the part assigned to it by its Almighty Creator. It is difficult to imagine anything more nearly approaching infinity in numbers, than when one attempts to compute the probable number of individual *Infusoria* in even a limited space—even a single pond; what then must be the overwhelming total existing in the whole world? No portion of the earth or ocean indeed, would seem to be destitute of living subjects for the microscope; and much may be learned even in situations which would, at first sight, appear to forbid all idea of the existence of even such minute, though interesting creatures. The following remarks of the celebrated Ehrenberg will assist in illustrating my meaning:—"Not only in the polar regions is there an uninterrupted development of active microscopic life, where larger animals can no longer exist; but we find that the microscopic animals collected in the antarctic expedition of Captain James Ross, exhibit a remarkable abundance of unknown and often most beautiful forms. Even in the residuum obtained from the melted ice, swimming about in round fragments in the latitude of 70° 10, there were found upwards of fifty species of silicious-shelled *Polygastrica* and *coccinodisceæ*, with their green ovaries, and therefore living and able to resist the extreme severity of the cold. In the Gulf of Erebus sixty-eight silicious-shelled *Polygastrica* and *Phytolitharia*, and only one calcareous-shelled *Polythalamia* were brought up by the lead sunk to a depth of from one thousand two hundred and forty-two, to one thousand six hundred and twenty feet."*

These remarks of Ehrenberg's shew a profusion of minute living beings to exist in even the most inhospitable sea, but they give no idea of the enormous multitudes of the remains of the shelled Animalculæ which are found in certain localities. At Richmond, in Virginia, a bed formed entirely of these minute forms exists, which is some sixteen feet thick, and extends, I believe, over some hundred square miles of surface; each cubic inch of this contains the remains of many millions of Animalculæ, probably far outnumbering the whole human population of the world. In our own country some similar, but far more limited deposits exist; one at Dolgelly, in Wales, which I have had an opportunity of examining, is entirely composed of minute organic remains, but is confined to a small number of species. Having a considerable quantity of this deposit, I shall be happy to supply any microscopist with some for examination. Recent silicious-shelled Infusoria also exist in very large numbers

* See Ehrenberg's treatise "*Ueber das kleinste Leber in Ocean*," read before the Academy of Science, at Berlin, May 9th., 1844.

in a damp situation near Newcastle, but I have not been fortunate enough to procure specimens as yet: I understand the earth there is almost entirely composed of them in a live state. In conclusion, I would only observe, that no person who is induced to take up the microscope, will ever regret the money spent on the instrument, or the time devoted to its use. Whatever be the turn of his mind, he may always find some subject on which this invaluable instrument will throw light; and if anything can afford, what may be called, *endless amusement*, the study of the microscopic observer may truly be said to approach it; for there is scarcely a limit to the subjects he may investigate, and the study of one object leads him on to another by easy and natural steps, and in addition to the recreation supplied by every observation, he is, at the same time, laying up a fund of useful and practical information, which will often throw light on matters which were before altogether incomprehensible by him. To any one wishing to enter on the study of the *Infusoria*, this is the best season of the year to commence, for, although many of them may be procured during the whole of the year, yet the numbers are greatly increased during the summer months, and it was the knowledge of this fact that led me to select this occasion for offering to my readers these hasty and imperfect remarks, in the hope that others may be induced to join in the race, where all may attain the goal, and where every one is sure of receiving a rich and valuable prize.

CONTRIBUTIONS TO THE FAUNA OF FALMOUTH.

BY W. P. COCKS, ESQ.

CLASS I.—MAMMALIA.

Great Bat, (*Vespertilio noctula*).—Out-house, Green Bank; barn in Mr. Jago's field leading to Trevethan lane: not uncommon.

Common Bat, (*Vespertilio pipistrellus*).—Green Bank, summer evenings: not uncommon.

Notch-eared Bat, (*Vespertilio emarginatus*).—Love lane, Panscoth lane, etc.: not uncommon.

Long-eared Bat, (*Plecotus auritus*).—Green Bank, Penryn road, etc.: not uncommon.

Barbastelle, (*Barbastellus Daubentonii*).—Found in a cave, west of Mainporth Bay: rare.

Greater Horse-shoe Bat, (*Rhinolophus ferrum-equinum*).—Found in a cave situated between Swanpool Bay and Pennance Head: not common.

Lesser Horse-shoe Bat, (*Rhinolophus hipposideros*).—Found in the same locality: not common.

Hedgehog, (*Erinaceus Europæus*).—Common.

Mole, (*Talpa Europæa*).—A piebald specimen was caught on the Triggineny farm; length, four inches and three-eighths: very common.

Common Shrew, (*Sorex araneus*.)—Common.

Water Shrew, (*Sorex fodiens*.)—Meadow near Dog-Kennel, Panscoth lane: not common.

Oared Shrew, (*Sorex remifer*.)—Meadow and boggy ground between Dog-Kennel and a large enclosed pond, near Captain Bull's residence.

Badger, (*Meles taxus*.)—Not uncommon.

Otter, (*Lutra vulgaris*.)—One was shot in a cave near Magazine Point, by Mr. G. Copeland, of Pendennis Castle, in 1849. A fine female was shot near the viaduct, Swanpool, by Mr. Bullock, in March 1850; length, three feet six inches: not uncommon.

Common Weasel, (*Mustela vulgaris*.)—New road, Panscoth lane, Budock road, etc.: not uncommon.

Ermine, or Stoat, (*Mustela erminea*.)—Three, in their winter garb, were shot on the Furze common, near Pendennis Castle; two in December, 1849, and one in January, 1850. Fur, yellowish white; tail, tipped with black. In the spring of 1850, two were destroyed in Budock bottom; fur dappled with bright reddish brown and white. Several of the specimens were preserved and beautifully mounted by our clever taxidermist, Mr. Chapman: not common.

Fitchet Weasel, (*Mustela putorius*.)—An old female was caught in a rat trap, in Trefusis wood, in the spring of 1845. Two young ones, male and female, were captured by a farm labourer, in the bottom adjoining the pleasure grounds of the late G. C. Fox, Esq., and one was shot in College wood, in August, 1848: not common.

House Cat, (*Felis catus domestica*.)—Tabby, tortoise-shell, negro, etc.: common.

VAR. 1.—Tail-less variety is very rare in Falmouth, but I am informed it is not uncommon in some parts of the county.

VAR. 2.—Pure white. Fur, coarse; eyes, light blue; pupils, dark bottle green: rare.

VAR. 3.—Albino. Fur, short, smooth, and pure white; iris, pale blue; pupils, red: rare.

Dog, (*Canis familiaris*.)—Common. Most of the different varieties occur here.

Fox, (*Vulpes vulgaris*.)—Not uncommon.

Dormouse, (*Myoxus avellanarius*.)—In particular localities, not uncommon.

Harvest Mouse, (*Mus messorius*.)—Corn fields, Corn ricks, Barns, etc.: common.

Long-tailed Field Mouse, (*Mus sylvaticus*.)—Common. The largest and finest specimen I ever examined, was sent to me by Mr. Andrew, Middle Terrace; it measured eight inches and a half from tip of tail to point of nose.

House Mouse, (*Mus musculus*.)—Common.

Black Rat, (*Mus rattus*.)—In the neighbourhood of the shipwright's yard, Bar: not uncommon.

Brown Rat, (*Mus decumanus*.)—Not common.

Brown Rat, (*Mus intermedius*.) *Bellamy*.—Found a fine (male) specimen in Trevethan lane, near Mr. Eddy's slaughter-house. *Description*.—Head

depressed, deep; neck short, thick; nose, truncated; eyes large, black; body large, plump, one inch and six-eighths in depth. Four inches and one-eighth from occiput to root of tail; tail stout at base, attenuated near the tip; four inches and a quarter long. Fur, dark yellowish brown—very short; armpits and inguinal regions, bluish grey; abdomen, white; hands and fingers, large; testes, very large, (evident proof of its being an old one of its tribe;) teeth much worn, of a dark ochre colour. Whiskers long, strong, and greyish; nails blunted and worn. The second specimen was a female, not quite so large; the uterus contained eight fetuses.

Black Water-Vole, (*Arvicola ater*,) *Macg.*—Captured one February, 1847, in a ditch near Prescowerth farm; after a careful and minute examination, I could not detect any specific difference in form or size from the *a. amphibius*. Its fur was as black as jet.

Common Water-Vole, (*Arvicola amphibius*.)—Embankments near the brook running through the meadow, near Dog-Kennel, Panscoth lane, etc.: not uncommon.

Field Vole, (*Arvicola agrestis*.)—Common.

Bank Vole, (*Arvicola pratensis*.)—Embankment on Captain Bull's side of the brook; Panscoth lane.

Common Hare, (*Lepus timidus*.)—Common. One with a white face was taken February 3rd., 1851, near Gwyllyn Vase, by Mr. Pope's greyhound.

Rabbit, (*Lepus cuniculus*.)—Common.

VAR. 1.—Angora, or long furred: rare.

VAR. 2.—Horn-lop and Ear-lop: not uncommon.

Mr. L. Wade killed one that weighed sixteen pounds.

Rabbit, (*Albino*.)—Not uncommon.

Restless Cavy, (*Cavia aperea*.)—Domesticated.

Common Hog, (*Sus domesticus*.)—The old Cornish Pig: long in the legs, large coarse ear, heavy head, rugged hair, large bone, etc., may be considered extinct in the neighbourhood of Falmouth; the present varieties are descendants of the old breed, crossed with the Berkshire, Leicester, Chinese, Neapolitan, and the improved Essex, etc.

Horse, (*Equus caballus*.)

VARIETIES.—Hunter, Coach, and Cart, common. Dartmoor, Welch, and Shetland ponies, rare.

Ass, (*Equus asinus*.)—Common.

Ox, (*Bos taurus*.)—Common.

Goat, (*Capra hircus*.)—Not Common.

Sheep, (*Ovis aries*.)—Common.

CLASS II.—AVES.

Peregrine Falcon, (*Falco peregrinus*,) *Lin.*—A fine male bird, in summer plumage, was shot by Mr. May, near Pendennis Castle, in 1845; I have examined three specimens, (females,) shot in the neighbourhood.

Kestrel, (*Falco tinnunculus*.) *Penn.*—Pennance and Swanpool, in 1846; a fine male shot by Master Reed, Trevisson, January, 1850: rare.

Merlin, (*Falco æsalon*.) *Penn.*—A male shot by Mr. May, November, 9th., 1849, and preserved by Mr. Chapman: rare; a female shot at Penryn, by the Rev. Mr. Phillpott's son.

Sparrow Hawk, (*Accipiter fringillarius*.) *Selby.*—Not uncommon.

Kite, (*Milvus vulgaris*.) *Flem.*—One at Swanpool, March, 1846; Mr. Seccombe met with one in Pennance Bay, in the autumn of the same year: rare.

Common Buzzard, (*Buteo vulgaris*.) *Selby.*—Rare.

Hen Harrier, (*Circus cyaneus*.)—A female was shot in the marsh Gwyllyn-Vase, Sept. 3rd., 1850. I observed the male bird in the same locality on the 5th. of the same month.

Long-eared Owl, (*Otus vulgaris*.) *Flem.*—A fine specimen of this Owl was shot by the late Mr. Olive, watchmaker, November 12th., 1846, near Crawgeys moor. Two fine birds, male and female, shot by Mr. Blee, Treverva, January, 1850, in the possession of Mr. N. Tressider.

Short-eared Owl, (*Otus brachyotos*.) *Selby.*—One specimen in six years, shot near College wood, winter, 1845.

White or Barn Owl, (*Strix flammea*.) *Penn.*—Not uncommon.

Tawny Owl, (*Strix stridula*.) *Penn.*—A specimen was shot in Trefusis wood, 1846: rare.

Dipper, (*Cinclus aquaticus*.) *Flem.*—College wood stream, Budock bottom: not common.

Missel Thrush, (*Turdus viscivorus*.) *Penn.*—Market and neighbourhood; flushed six couples within six hundred yards; January 15th., 1850: not uncommon.

Fieldfare, (*Turdus pilaris*.) *Mont.*—Common in winter.

Song Thrush, (*Turdus musicus*.) *Mont.*—Common.

Redwing, (*Turdus iliacus*.) *Mont.*—Common in winter and spring.

Blackbird, (*Turdus merula*.) *Mont.*—Common. I have examined several specimens of pied blackbirds. C. Bullmore, Esq., shot one with a pure white plumage extending from the bill over the breast to between the legs.

Ring Ouzel, (*Turdus torquatus*.) *Mont.*—A male, in bright plumage, was shot by Master Cox, December 1st., 1847, Penryn creek: not common. October, 1848, Mr. G. Copeland said he had shot one at Pendennis Castle; and Mr. Chapman purchased a female of Mrs. Dunning, November 3rd., 1849.

Golden Oriole, (*Oriolus galbula*.) *Penn.*—Shot at Swanpool, 1845.

Hedge Accentor, (*Accentor modularis*.) *Flem.*—Common.

Redbreast, (*Erythaca rubecula*.) *Selby.*—Common.

Blue-throated Warbler, (*Phoenicura Suecica*.) *Gould.*—I have some doubt of the truth of this bird having been shot in the neighbourhood of Falmouth, although the preserved skin was brought for my inspection.

(To be continued.)

FURTHER REMARKS ON THE LARGE FOSSIL
MARINE WORM OF THE MOUNTAIN LIMESTONE
DISTRICT OF WENSLEYDALE, YORKSHIRE.

BY EDWARD WOOD, ESQ.

EVERY addition to our stock of knowledge, however small, adds to the chance of solving the great problems of geology, and, looking at the subject in such a light, I trust your readers will not think their time trespassed upon, in the endeavour to verify the existence in long past ages—even of a worm.

In continuation of the subject noticed in your last number, I think that the following hints and queries may help to a conclusion.—That the fossil in question is not a marking has been clearly demonstrated; it must therefore be placed, as an organic being, among the *Annelidæ*; but to what order the specimen is referrible, whether it bears any analogy to now existing species, or whether, like so many fossils, it forms an order of itself, constituting a link between the orders at present laid down, is not so clear.

Of the *Annelidæ*, the various species of the order *Dorsibranchiata*, seem most nearly allied to the fossil—those of *Eunice* and *Nereis* bearing the greatest resemblance. The *Eunice gigantea*, of the tropical seas, attaining a length of from three to four feet, but an examination of the rings of its body shew a marked variation. The fossil has articulations jointed like the stalk of a fern—the *Eunice* exhibits an even surface throughout its entire length: in the jointings, the *Nereis nuncia* and the fossil approximate more closely; but all the living species of this order have characteristics which cannot be found in the fossil species; they have, generally, a pair of setæ (hair-like appendages) to each joint—a sort of swimming apparatus. The rings which form the head change, though not markedly, from those that form the body; the head is, in fact, distinctly developed: in neither of these instances do the living and the fossil annelide agree, and they are differences of no small importance, because they seem to point to a totally different habitat for the two beings. The living one inhabits the shores of the sea, and the clear water about the coral rocks, crawling about “in the anfractuositities of the madrepores on the rocks, and on the sand,” and in mud; the last, however, bury themselves in holes, and form tubes out of the ooze, and other substances, while some exude calcareous matter, which produces a sort of tubular shell. “These, of course, have not much freedom of motion, but the quick-moving species are very lively, and swim well, and they creep about in a serpentine manner, from right to left, on the surface of bodies at the edge of the water.” Some of these actions and faculties may be predicated of the fossil annelide, but not all of them—it has no swimming apparatus; it could not therefore inhabit deep water, being a red-blooded worm. If the fossil be the animal itself, it could not have belonged to any species of that class which construct tubes, or bury themselves in the mud; the tubes would have been found in the first case, or the burrowing holes in the other.

But there is a well known species of another class—the earthworm, to which it seems to bear some analogy; it is asetigerous, so are they; it has no developed head, the earthworms have not; it even appears, like the earthworm, to burrow, as it sometimes dips through the stratum, and can be traced some little distance, as if it had been burying itself in the mud—(not, however, like the Annelides of the Dorsibranchiate order, who bury half their bodies in a permanent tube,) probably not to any great depth, as there are no marks of holes burrowed in the strata, and the greater part of the body is always found on the surface of them; *very few* are found dipping through the strata.

The only fossil Annelides which appear to have been much noticed are those found in the lower Silurian flagstones at Lampeter. There are three or four species, one or two allied to the *Gordius*; one named by Mr. Mc'Leay, *Nemertites Ollivantii*; the last has the most, but none of them bear much resemblance to the Annelide of the Carboniferous system. They are small, the largest is not thicker than a quill, and appear to have been flattened, or else are only markings; they are also, at least one is, setigerous—the others appear to be so; the setæ of the first are very well marked, but, at the same time, the articulations in all are exceedingly imperfect. The Annelide of the Carboniferous system has, on the contrary, the articulations very clearly marked—the setæ not at all; (nor is it probable there were any, because, if the Silurian rocks retained the impression, it is likely that the Carboniferous would also;) the breadth is five times greater than that of the largest Silurian; of the length, nothing can be asserted of either.

During the time when these 'piled up layers of tombs' were first deposited, at the close of the Devonian period, the whole region must have been gradually sinking; in some places masses of coral had already been formed and submerged, constituting the floor of the then sea; some obstacle had then arisen—some change taken place in the flow of the current, or in the mouth of some large river, and so a sand bank had been formed, which increased faster than the bottom of the sea sunk. It rose to the level of the water, a little above it perhaps, at lowtide; it then became replete with life, and the worm, now found fossil, not being capable of swimming, crawled over the sand at ebb tide, and perhaps buried itself in it as the tide returned; but the bank, not being raised above the sea level, of course sunk with the sinking land, and as it sunk, one layer of sand was laid upon another, keeping its surface still at the same level, while it gradually increased in thickness. The Annelides, few at first, (for they are found, though rarely, in the lower beds,) gradually increased, owing their destruction to the submergence of the bank, or to the fresh water brought down by some large river during the annual inundations—fresh water acting like poison upon Marine Annelides.* The gradual sinking of the bottom of the sea would, imperceptibly, change the zoology of the region; and the bank having become submerged, the superincumbent strata would have been laid upon it, to the depth of many hundred feet; and that sea shore, over whose

* Reports on Zoology. Ray Society, 1844, page 504.

surface had crawled the worms in countless thousands, knotting and twining themselves in glistening heaps, shews nothing now but a stony fragment, whose very existence and former life are disputed.

Richmond, Yorkshire, March 12th., 1851.

Miscellaneous Notices.

Nesting of Rooks, (Corvus frugilegus.)—I venture to suggest, that, most probably, Schwenckfeldt should have qualified his remark with the addition of "in his vicinity," where probably the largest *trees near buildings*, were near cemeteries or churchyards. On reflection, I never remember having seen a rookery *except* near a large building. There are very numerous instances in Gloucestershire, of rookeries in large elm trees, near large, retired houses; there is one in Brunswick, and also one in Queen Square, Bristol; one in St. Dunstan's churchyard, near the Custom house, London. There is a single elm tree, near the corner of Wood Street, Cheapside, in which, for several years, there have been, usually, three or four nests; and I remember when the first nest was built, there was no other that year: I have watched them with great interest on account of the singular locality. Hence I conclude that Rooks do not dislike either retired or noisy situations; and most often select large trees near buildings; but, not having had a Rook's education, I am unable to decide whether they do so from preferring to live near mankind.—*Henry Tuckett, Frenchay, Bristol, 3 mo: 8th., 1851.*

Incubation of the Partridge (Perdix cinerea.)—A few years ago I saw a paragraph in some periodical, alluding to Jeremiah, xvii. 11, "As the Partridge sitteth on eggs, and hatcheth them not;" and adding, that some highland shepherds had asserted, to the writer, that the Partridge did not complete the hatching, but vacated the nest for several hours previously. If that keen observer of nature, Waterton, or some other, could throw any light on this question; it would be very interesting.—*Idem.*

Early appearance of the Cuckoo, (Cuculus canorus,) at Malvern.—I send you an extract from a letter, which I received the other day from my sister, by which it appears that the Common Cuckoo was seen at Malvern, as early as the 12th. of January last. I may mention that my sister, having lived with me some time, has been in the habit of noticing and paying some attention to the different birds, so that I do not think it probable she would be mistaken as to the species. The following is the extract:—"I quite forgot to tell you, that, on Sunday, the 12th. of January, while we were at Malvern, we heard a Cuckoo: we, that is, Annie and Charles Kenpey, George Gibbes, and myself, were walking on the hills, and distinctly heard it. At first we thought it could not be so, and set it down to Lady Wilmot's parrot imitating one. On our return home, we were all standing in the Easted's garden; when Mr. Easted called out, "Why, there flies a Cuckoo!" and we all saw

it fly across the garden. Is not this a curious circumstance? I thought it would interest you.”—*F. R. Gibbes, Northallerton, February 19th., 1851.*

The Siskin, (Fringilla spinus,) Linn.—The first time I saw any of these birds, was, while shooting in Fancy-wood, (about five miles from Plymouth,) in December, 1845, when about half-a-dozen of them were clinging to the catkins of the alder. I immediately shot at them, and killed a female, but a spaniel so mutilated it, that it was unfit for being preserved. After that time, I kept a sharp look out for them, and in the January following saw them; (I conclude the same birds, as there was the same number) on some alder trees, about a mile from where I first observed them, on the banks of the River Plym: I shot them all, and they proved to be three males and three females. Although I frequently passed these places in 1846, none appeared; but in the middle of December, 1847, when the ground was covered with snow, I saw a flock of between forty and fifty pass over my head, as I was shooting in another part of the same wood; and after this time, I constantly saw small parties, on the same sort of trees, in the neighbourhood, until the end of February, 1847, when they disappeared. I once saw an old male alight on a thistle, and eat the seeds; with the exception of which, I never saw them feeding on anything but the seeds of the alder tree; clinging in all manner of attitudes—sometimes with the top of their heads and their backs towards the ground. While feeding they would allow me to approach very near them, but on being disturbed, flew a great distance before alighting, in a rather compact body, uttering a sharp note, somewhat resembling that of the Grey Linnet, (*Fringilla cannabina.*) I have not observed any since that time.—*R. A. Julian, Jun., Lara House, Plymouth, March 17th., 1851.*

Black Start, or Black Redstart, (Sylvia tithys.)—Not uncommon on the southern coasts of Devonshire. Arrives here usually the first week in November, and in one instance as early as the 28th. of October: remains here all the winter, and departs in March. They usually frequent the rocks on the coast, and the sides and tops of cliffs; the adult birds are extremely shy, but the young are easily obtained, and vary much one from another in their plumage. I know of more than twenty of these birds being killed last year, sixteen by one person, under Mount Edgumbe, Plymouth Hoe, and Citadel, and near the Devil's Point, Devonport. Their note much resembles that of the Wheatear, (*Saxicola ænanthe.*) The Redstart, (*Sylvia phœnicurus,*) is by no means common here,—I have never seen more than four or five in a season.—*Idem.*

Pigmy Curlew, (Tringa subarquata.)—Are not very rare here in the months of September and October, and are met with occasionally through the winter in small numbers, on the Plymouth Breakwater, Shag-rock, Mewstone, the Lara, or St. John's lake, and River Tamar; frequently in company with Dunlins, (*Tringa variabilis,*) from which they may be distinguished at a great distance, while flying, by their larger size and white rumps. There have been

two or three killed here in their breeding plumage, one of which I have in my collection.—*Idem*.

Snowy Owl, (*Strix nyctea*.)—A bird of this species was seen by a boatman, sitting on the ground, on the Cornish side of the River Tamar, under St. Germain's, who knocked it down with a stick, in December, 1838. This bird is now preserved in the Rev. W. Hoar's collection, Stoke, near Plymouth.—*Idem*.

Pugnacious disposition of the Robin, (*Erythaca rubecula*.)—The following fact came under my own observation last winter, 1849-50:—Having heard of, read, and seen a great deal of its pugnacious qualities, both with its own species, and also with other small birds with which it might come in contact, I thought I would try it with one of its own species stuffed, of which I have a very fine one. I first of all placed it inside the window, so that the Robin in the garden could see it, and he immediately flew to the window and commenced pecking at the glass; but not succeeding in getting at the stuffed bird, he flew away for about a minute, then returned and commenced pecking again at the glass, through which he could see the bird. I then placed the stuffed Robin outside, on the window sill, and went and hid myself, so that I could see what the Robin would do, now that he could get at it; he very soon returned, and commenced pecking at the stuffed bird most furiously. At last he knocked it off the sill of the window; he followed it as it fell down, and seemed to be quite pleased at being victorious, and continued pecking at, and pulling feathers out of it, while it was lying on the ground. I then came out of my hiding-place and frightened him away, or else he would soon have spoiled my bird.—*George B. Clarke, Woburn, Beds. January 15th., 1851.*

The Green Sandpiper, (*Totanus ochropus*.)—A fine specimen of the young of this bird was shot early last August, at Eserick, and was preserved by me.—*David Graham, York, January 6th., 1851.*

The Shoveler Duck, (*Anas clypeata*.) *near York*.—A fine male specimen of this very beautiful duck was shot at Riccall, about the 28th. of March, 1850. It was rather curiously marked, having some dark spots on the usually perfectly white neck. It is a rare bird in this district.—*Idem*.

The Fork-tailed Petrel, (*Thalassidroma Leachii*.) *near York*.—A specimen of this rare Petrel was picked up, or rather caught alive, by the late Mr. Christie, of Kirkhammerton, in an exhausted state, after having been pursued and attacked by some Rooks, who had at last got it on the ground, and would soon have made an end of it, had not Mr. Christie come to the rescue.—*Idem*.

Bar-tailed Godwit, (*Limosa rufa*.)—Six very fine specimens of this bird, which is very rarely obtained in this district, were on sale in the York market on the 25th. of January, 1851; four of which came into my possession. They were obtained in the neighbourhood of Perth.—*Idem*.

The Turnstone, (*Streptilas interpres*), at *Bridlington*, in *May*.—Last June, Mr. Graham shewed me a pair of Turnstones, shot at Bridlington on the 30th. of May. In the female were four eggs, as large as a pea, which would seem to indicate that they had remained in this country to breed.—*B. R. M.*, *York*, *January 7th.*, 1851.

Variety of the Common Bunting, (*Emberiza miliaria*).—A specimen of a very pale straw-colour, with a few small brown spots, was shot at Pickering, about the 10th. of March, last year. I do not remember to have before seen a similar variety of this bird.—*B. R. M.*

The Nightingale, (*Sylvia lusciniæ*).—Some years ago I noticed the capture of this bird near Beverley. I am not aware that the occurrence of another specimen at Killingbeck, near Leeds, early in May, 1849, has been yet put on record. It was at that time in the possession of Mr. Thomas Russell, of York Road, Leeds.—*B. R. M.*

The Opah, or King Fish, (*Lampris luna*), taken at *Redcar*.—This remarkably rare fish was taken at Redcar, by Mr. S. Wrightson, November 17th., 1850; by whom it has been preserved, and is now in the collection of C. C. Oxley, Esq., of that place; though by no means so large as that placed in the British Museum, yet every naturalist must hail with delight the capture of a fish so beautiful, and of such rare occurrence. The colours of this fish are of the most rich and gorgeous description; and on being taken out of the water, it might be compared to a large ball of fire. The length was three feet six inches; depth, two feet six inches; weight, seventy-three pounds. It may be interesting to state, that this fish is a native of the Japanese seas, and held sacred by the inhabitants of that coast, who look upon it as an emblem of happiness. Yarrell records eight.—*Daniel Ferguson*, *Redcar*, *January 13th.*, 1851.

A Crab, with three Oysters attached to its Carapace.—A Crab, apparently full grown, was taken with a hook on East Carr, at Redcar, in July last, having three good-sized Oysters attached to its shell. It affords a very important inquiry as to the age of the Oyster, or rather, as to the rapidity of its growth; then again, the Crab is considered by some naturalists to change its shell annually. If the Crab does change its shell, then of necessity is the Oyster of very quick growth. The attention of naturalists, residing near the habitats of this Bivalve, is invited to the consideration of this subject.—*Idem*.

Plumularia Falcata.—A beautiful specimen of this Zoophyte was taken at Redcar, on the 29th. of May, 1849, and then deposited in a bottle of sea-water; it has since grown two inches, and during that time the water has not been changed, and only a very little added, on one occasion, to supply the deficiency caused by evaporation: it required about half a drachm to fill up the bottle.—*Idem*.

Review.

The Bee-keeper's Manual, or Practical Hints on the Management and Complete Preservation of the Honey-Bee. By HENRY TAYLOR. Fourth Edition. London: R. GROOMBRIDGE AND SONS, 1850. p. p. 184.

IN order to make the keeping of Bees a source of profit and not of loss, it is absolutely necessary, that the habits, and, as it were, *domestic economy* of the insect, should be thoroughly understood; so that in the management of our hives and their inmates, we may not be acting in opposition to the instincts of the Bees, but may rather assist them in carrying them out to the fullest extent. This knowledge must be either acquired by long and patient investigation, which few people have time or inclination for; or else, it must be supplied by those who have, from choice, or necessity, paid the requisite attention to the habits of these insects. The work before us is, evidently, the production of one who has not only studied the best authors on his favourite subject, but has also given a large portion of his time to his Bees; and who has made excellent use of his opportunities for obtaining practical information from the best possible source; namely, the Bees themselves.

The whole work appears to us to bear this character; and the facts are told in such plain and intelligible language, that no one can, we imagine, misunderstand any of the details given; in addition to this, the whole work is profusely illustrated with wood-cuts, producing a whole which will be a most valuable addition to any Bee-keeper's library. The system which Mr. Taylor recommends, is that which is called "The depriving System," as opposed to the old plan, by which the Bees were all destroyed, in order to obtain the honey. This system is not only more humane and rational, but is also more profitable; and is founded on a knowledge of the natural history of the Bee, as observed by the most accurate and eminent naturalists.

In speaking of this system at page 14, Mr. Taylor says—

"Opposed to the mode of management in which swarming is systematically encouraged, is that whereby, under ordinary circumstances, it may be usually prevented. Let us observe the natural instinct of these little animals, and provide them with such an addition, temporarily, of storing-room, as will enable them to go on constructing fresh combs, to be filled with honey, pure and unmixed with other substances. This being deposited in some separate receptacle, but communicating with the stock hive, can at pleasure be obtained possession of with but little trouble, and without any annoyance or injury to the Bees. The object being obtained, they return again to their original habitation."

Farther on, at page 16, when speaking of straw depriving hives, he goes on to say—

"The form which I prefer for straw hives on the depriving plan, is a perfectly straight, or cylindrical one, and quite flat at the top. Mr. Payne recommends them to be twelve inches wide, and nine inches deep, withinside. My own experience leads me to prefer from half to an inch more of diameter, and an inch less of depth. It may be well if, in this connexion, I introduce the observations of Gelieu. "One of my chief objects" says he, "has been to ascertain what shape of hive is the most profitable; and with this view I have tried all the different kinds, and have

invariably remarked that bees thrive better in low hives than in high ones; that in general those which are broad and flat amass more honey, thrive better, and give out stronger and earlier swarms than those which are high. A hive thrives only in proportion to the success or perfection of its brood-comb in the spring. It is therefore of great importance to keep up the necessary degree of heat for the hatching of the brood. If at that time the bees are lodged in high and roomy hives, they will crowd together in vain, and the heat ascending is lost in the empty space above. This never happens in low flat hives, where it is more easily concentrated."

The fact of Mr. Taylor's book having arrived at its fourth edition, is, we think, a pretty good proof of the practical and useful nature of its contents.

Proceedings of Societies.

Yorkshire Naturalists' Club, March 5th., 1851.—The President, PROFESSOR PHILLIPS, in the chair.

The following new members were elected:—W. Richardson, Esq., Stockton-on-Tees; W. Richardson, Esq., jun., York; John Harris, Esq., York; J. B. Pritchett, Esq., York; Mr. R. Sunter, York; Mr. M. Slater, Malton; Mr. J. Conroy, York.

A communication from D. Ferguson, Esq., of Redcar, relative to the intention of the Club to carry on some dredging operations off that coast, having been read, it was proposed by Dr. MORRIS, and seconded by E. SMALLWOOD, Esq., "That arrangements be made, as soon as practicable, for carrying out the proposed dredging operations at Redcar; the dredging to take place in September." Carried unanimously.

Some interesting fossils and recent objects from Redcar, were forwarded for exhibition, by D. Ferguson, Esq. They included an example of an extremely rare British shell, (*Eusus Norvegicus*,) taken from a depth of sixty fathoms. A fine specimen of the great spiney crab (*Cancer Horridus*,) taken at Redcar lately, and which was remarkable as being greatly infested by large specimens of the *Balanus Scoticus*. Also specimens of the circular crab (*Atelecyclus heterodon*,) and the masked crab (*Corystes Cassivelaunus*,).

MR. CHARLESWORTH exhibited some very choice mountain limestone fossils, from the neighbourhood of Settle; also a large number of fossil sharks' teeth, with fossil ear bones of whales, from the crag of Suffolk, forming part of the collections which are being made by the British Natural History Society, for distribution among its members.

MR. BAINES brought before the Club seventy-nine new species of mosses, which had been discovered by himself and other botanists since the appearance of his "Flora of Yorkshire," in 1840. He stated that out of three hundred and sixty-eight species found in England, two hundred and ninety-one had been noticed in Yorkshire. These seventy-nine new mosses would form part of an appendix to the "Flora of Yorkshire," which he was about to publish.—Several members expressed a hope that he would open subscription lists for the announced work. All the new species of mosses were exhibited to the Club, mounted in a new and very convenient manner; several allied species being placed on cardboard, and covered with a plate of glass, which enabled them to be handled round and examined by the members.

MR. W. ANDERSON laid on the table a fine specimen of a large fungus, allied to *Lycoperdon*, which he had procured lately near Fulford.

MR. SMALLWOOD exhibited a very fine specimen of the fossil plant called *Stigmaria*, procured from near Knaresborough.—The PRESIDENT remarked that it presented some peculiarities in the cicatrices, being at one end much approximated, while at the other they were separated considerably.

MR. GRAHAM exhibited a curiously marked specimen of the Shoveler (*Anas clypeata*,) obtained lately near Goole. He also shewed a stuffed specimen of the Ermine, in its winter dress, taken at Moreby.—Several zoophytes, which had been dredged off the Dogger Bank, off Scarborough, were also exhibited by him; among them, a number of very large specimens of *Antennularia antennina*.

An Entomological Sketch.

THE SCOTCH ARGUS, (*Polyommatus Artaxerxes*.)

BY R. F. LOGAN, ESQ.



P. Artaxerxes.



P. Agestis.

It is a bright day in June, at the base of one of the sunny slopes of Arthur's Seat, the lion-couchant hill which overlooks the metropolis of the North, and is one of its fairest ornaments. The banks are yellow with the flowers of the Dwarf Cistus, (*Helianthemum vulgare*), whose delicate petals fall with the sun, intermingled with the more enduring blossoms of the Bird's-foot Trefoil, (*Lotus corniculatus*), whose little scarlet buds pale to a rich yellow as they unfold; while here and there, the pink blossoms of the Rest-harrow, (*Ononis arvensis*), spread themselves in wild luxuriance on the edge of some overhanging bank; and the first sprigs of Wild Thyme begin to shed their perfume, and attract the attentions of the large Moss-carder Bee, as he goes booming past on rapid wing.

The bright Blue Butterflies, (*Polyommatus alexis*), are flitting about—now flying straight onward with impetuous haste—now lingering round a flowery knoll, or resting with wings half open on a tuft of *Helianthemum*, and anon starting off again, and sportively buffeting a relation as he passes by, or bestowing a little of the same rough attention upon one of those dusky little Butterflies, which are flitting so quietly about, shewing, as they close their wings for a moment on some spike of grass, an evident relationship with their more gaily coloured rivals, in the spots and dots which adorn their wings on the under side. Above, they are almost black, with a central dot of the purest white on the anterior wings, and a row of reddish spots behind, with a delicate white fringe encircling all.

These dusky little fellows are, *par excellence*, the Butterflies of Arthur's Seat. They are the *Polyommatus Artaxerxes*, or Scotch Argus; and, although found, sparingly, in other parts of Scotland, they have never been seen anywhere in such numbers as on Arthur's Seat; though, strange to tell, no one knows anything

of their history—where they lay their eggs, on what the larva feeds, and where the inactive chrysalis passes the long, cold months of winter, are all a mystery; and yet every year, as the month of June comes round, the little dark Butterflies make their appearance, and are in great demand among entomologists, at home, as well as abroad, where the species has never been seen alive.

The discovery of the caterpillar and chrysalis is a point much to be desired by lepidopterists, but every attempt to attain it has, hitherto, proved unavailing; and there is much diversity of opinion as to the rank which the Butterfly ought to hold among its congeners; the Durham Argus, (*P. Salmacis*.) found at Castle Eden Dean, appearing to connect it with the *Polyommatus Agestis*, or Brown Argus, of the southern counties, of which some people, therefore, consider it as merely a variety; while others, with more appearance of truth, hold it to be a distinct species. The discovery of the caterpillars of each will probably alone solve the difficulty; or, the occurrence of either in the district inhabited by the other, would go far to prove them distinct, as the advocates of the variety theory ground it on difference of soil and latitude, affecting and modifying the characters of the insect.

As we cannot solve the question, however, merely by reasoning about it, let us turn our attention again to the little insects before us, and observe their peculiarities of habit, if they have any. On Arthur's Seat, they are chiefly found on the south side, at, or near, the base of the hill, and seem very partial to the patches of gorse which occur here and there on the banks; not apparently, however, that the *Ulex* has any particular attraction for them, but because the grasses grow there more luxuriantly than elsewhere, and they have more shelter than on the barer portions of the hill. They generally make their appearance, in ordinary seasons, about the first week in June. In very early seasons, they have been seen even in the end of May; and in backward seasons, sometimes not till the end of June, or beginning of July.

Let us now revisit their haunts as the shades of evening are beginning to fall. The last rays of the setting sun are tinting the western clouds. *Sericoris Cæspitana* is getting active on the banks. *Deilephila Porcellus*, the small Elephant Hawk Moth, glances at our feet for an instant, with his rosy hue, and quick, humming wings. The *Crambi* are flitting about where we saw the *Polyommatus* in the heat of the day; and resting on the culms and pannicles of the grasses, with their wings closed, in a state of perfect repose, showing, to excellent advantage, the beautiful white and brick-coloured spots, on the pale brown or fawn-coloured ground, are the said *Polyommatus*; where they will remain, unless shaken off by the wind, in a state approaching to torpidity, until warmed into life again by the morning sun; when they will start, move their antennæ up and down, advance a step or two, open their wings to the sun, and, after basking for a few seconds, launch forth again to sip the nectar of the fresh opened flowers.

Now a word or two on the localities in which this Butterfly has been found,

and we have done. Although most abundant on Arthur's Seat, so that it was long imagined to be peculiar to that hill, it has occurred in numerous other localities throughout the lowlands of Scotland. On the neighbouring range of the Pentland hills; at Flisk, in Fifeshire; and along the shores of the Frith of Forth; in Berwickshire and Dumfriesshire; on the Ochills, in Stirlingshire; and among the Lammermuirs, in East Lothian; so that it seems very generally distributed around its centre at Arthur's Seat.

Duddingstone, near Edinburgh, March 19th., 1851.

ON THE HABITS OF THE ROOK, (*CORVUS FRUGILEGUS*.)

BY THE REV. W. WALDO COOPER.

FEW observations have been more frequently, or more justly, made, than that we have but little certain information of the habits of many of our most common birds. To others, I leave it to write upon the causes of this seeming anomaly. I will endeavour to rectify that careless mode of summarily disposing of a bird with such observations as 'it is only a sparrow,' or 'only a rook.' That this fault is less prevalent than it was, I observe with pleasure; but still the fashion, or perhaps rather a false ambition, leads naturalists to prefer looking for scarce birds, and new species, to studying the habits of the settled and numerous inhabitants of the country. The greater the means of observation afforded us, the greater ought to be our knowledge; and I am induced to offer these remarks by the hope of drawing forth the experience of others; for, though I cannot flatter myself that I shall add anything to what is already known of the habits of the Rook, yet, I trust I may succeed in directing attention to some points, which require further observation and study. Before, however, commencing my remarks, I must acknowledge my obligation to my uncle, the Rev. R. P. Alington, of the Rectory, Swinhope, who has kindly furnished me with many interesting particulars of the Rook, several of which I have made use of in the following observations.

I will take, as a starting point, the time immediately before the Rook begins his nest; and then the first question that arises relates to his *courtship and marriage*. This point, as far as I know, has been but little treated of; probably from the difficulty in making observations. The only circumstance, of which I am aware, that could be supposed to have reference to their pairing, is, that in the early part of the building season, several parties, each always consisting of *three*, may be seen flying round the trees in the Rookeries, *two always pursuing one*: the pairing must, however, have taken place long before, for the nests are already commenced. What are they then doing? My complete ignorance of the exact time and mode of pairing, I am compelled to admit; I believe, however, that the main difficulty in observing this interesting ceremony, arises, in a great measure, from Rooks *pairing for life*. When I come to the question, what becomes of the young Rooks, this difficulty will be seen to be very great.

The places which the Rooks generally choose for their nests, are lofty trees in the neighbourhood of old mansions, or in extensive woods; the former are, however, generally preferred. I have sometimes seen nests in hedge-row trees, at a distance from houses or woods; but this, I believe to be an unfrequent occurrence. There is also on record, that in the year 1846, two pairs of Rooks built their nests, and hatched their young, between the chimney-pots of two houses, in a thickly-populated part of Kingston-upon-Hull. That they sometimes build in large towns, is well known; I need only instance the nests on the trees in the Garden of Gray's Inn, London; to which I hear the Rooks have again returned this spring. The time of beginning to build varies in different Rookeries in the same district, without, as far as I am aware, any apparent reason. They will, however, generally be found to commence between the 20th. of February and the 20th. of March, except, perhaps, in cold seasons, when they may be a few days later. The nests are too well known to need any description here. The eggs vary from three to five in number; and the young are generally hatched between the 3rd. and 20th. of April.

At the beginning of May, the Rook-shooter makes a great slaughter. Soon after this, the Rooks forsake the Rookeries in the open ground, and betake themselves to the woods to roost, generally returning every day to the neighbourhood of the Rookery to feed. I have been unable to ascertain from what distance they come to the woods to roost; but from the vast numbers I have constantly seen resort to a wood in this neighbourhood, in the parish of Kingersby, I suppose them to come from a great distance. On their return in the evening, they always alight near their chosen wood to feed; and I have frequently seen large fields almost covered with them. In fine, still weather, they fly at a great height when returning at night, and when they get over the field where they intend to sup, they will fall with extreme rapidity, with a zigzag motion, their wings outstretched, and uttering a peculiar cry, till they come within a few yards of the ground, when they suddenly throw up their heads, and resume their ordinary horizontal flight for a short distance before alighting. They continue very busy on their feeding ground for about an hour, and then, rising in a body with much clamour, fly off to the wood, making many circles over it before alighting, as if to examine it, and discover any danger that may threaten them. It is generally nearly an hour before the wood becomes quiet, for on every fresh arrival, the uproar is renewed, till at length it becomes almost deafening; when, however, the whole party is assembled, the wood is soon hushed; the chattering of the Magpie, and the hoarse call of the Carrion Crow having long ceased.

Up to the time when the Rooks begin to visit their nests, for the purpose of repairing the damage done by the storms of winter, many young birds are conspicuous in the flocks as they come in to roost; conspicuous, I mean, by the black feathers at the base of the bill. Most of them then disappear; a few are, however, still to be seen, and may be easily observed in the Rookeries; they are generally later in building than the old birds, and have

difficulty in getting their nests completed; for the old inhabitants invariably pull their nests to pieces as often as opportunity offers. Occasionally, though rarely, a bird with the feathers still remaining at the base of the bill, pairs with what, for the sake of distinction, I will call an old bird. The time and mode of getting rid of these feathers have been the subject of much dispute; and, though I do not pretend to settle the question, yet it is, I think, a fair subject for discussion in a rambling paper on Rooks. First for the facts.

Many young birds may be seen consorting with the old ones in the roosting woods in January, and the beginning of February; they then, for the most part, disappear, though here and there one may still be observed. Go to the Rookeries in the breeding season, and a few may be seen then engaged in rearing their offspring. Have the greater part of them at this time lost the feathers at the base of the bill? I think not: and I account for their disappearance by supposing a migration; for simultaneously, with the sudden disappearance of the birds, having the distinguishing mark of young ones, I note, at least in Kingerby wood, where my observations have been made, that the number of Rooks coming to roost, is materially diminished. Again, did they stay in their native neighbourhood, either the old Rookeries must increase greatly every year, or many new ones must be established. Mr. R. P. Alington has furnished me with a calculation, that every year there escape from the Rookery at Swinhope, about one hundred and fifty young Rooks. He has also furnished me with a list of *twelve* places, within six miles of his residence, where there are Rookeries, many of them much larger than the one at Swinhope. Taking them, however, at the same size, this gives, (supposing there are three birds to a nest, and allowing three-fourths of the whole number hatched for the destruction by the Rook-shooter, and other casualties,) no less than two thousand as the annual increase, in that small district. The fact is, however, that the old Rookeries do not increase. We are, therefore, driven to this; either the number of young birds that escape, is not more than sufficient to fill up the vacancies caused by death among the old ones, and the above calculation is wrong; or they migrate. I think the latter supposition is the correct one; for on no other can I account for the sudden and considerable decrease in the birds roosting in Kingerby wood, noticed before; that decrease taking place, as far as I can observe, entirely among the young, or black-billed birds. Taking the facts into consideration, I come, therefore, to the conclusion, that the denudation of the base of the bill does not generally take place till the birds are at least a year old.

Now for the mode or cause of the denudation. The question on this point may, I believe, be fairly stated thus: is it caused by *abrasion*, or is it the natural state of the adult bird? I incline to the latter opinion, because, first, though the Rook is a great delver, yet he does not at all seasons dig equally; and at some seasons so little, as to allow the feathers to grow, at least partially, were abrasion the *sole* cause of their absence. Secondly, the mode

of his digging is not such as to cause much abrasion. Thirdly, I have never seen or heard of a specimen, not kept in confinement, in which this process was taking place; that is, the feathers *damaged only* by digging. Fourthly, the operation of abrasion must be painful, and it must be continued; so that the poor bird must be put to torture every time he digs deep after a worm or a grub; and this I cannot but consider as inconsistent with the universal tender-kindness of that Almighty Being, who has ordered him to seek so large a portion of his food below the surface of the earth. Fifthly, the Carrion Crow, and the Jackdaw, which are also great diggers, never exhibit, as far as I know, any signs of abrasion. Sixthly, the exact correspondence of the line of denudation in all the specimens I have examined, points rather to natural, than to artificial causes.

We now come to the question, "What becomes of the young Rooks?" I have already stated my belief that the greater part of those which live through the first winter, leave the Rookeries in which they were reared. The cause of this migration I suppose to be twofold:—First, instinct prompts them to leave places already sufficiently occupied by their kind; and, secondly, the sort of persecution they undergo in the building season (before noticed) from the old occupants of the Rookery compels them. These two causes appear to me sufficient to account for their migration; and if they are admitted, it follows, that we must look to places as yet but thinly tenanted by these birds, for their ultimate destination. I am told that Rooks are increasing in the fens; but any one acquainted with that district, will at once see that it cannot receive great additions, owing to the want of trees.

I have obtained from my friend, Mr. Martin Curtler, of Browe, near Worcester, an account of the foundation of a Rookery at Waresley, the seat of the Dean of Worcester. He tells me, that in the year 1848, when first the Rooks built at Waresley, there were two or three nests; in 1849, there were sixteen or seventeen nests; and last year as many as three times that number. This Rookery must, therefore, have received considerable additions in each year since its establishment, from sources independent of itself. But what a little way does it go towards accounting for the numbers that annually escape from the small district in the Wolds of Lincolnshire, before mentioned!

I did not set out with expressing a hope, that I should clear up the difficulties I was about to state in the history and economy of the Rook; but a collection of facts, and a comparison of theories, must tend towards that desirable result. I will, therefore, at once conclude this already too lengthy paper, by expressing my conviction that we must look to the observations, not of those, who, like myself, live in a country already thickly tenanted by the Rook; but of those, who have the opportunity of watching their spread over districts, where this interesting bird is comparatively a stranger. I hope that this notice may have the effect of directing the attention of persons in the latter districts, to the questions relating to the denudation of the bill of

the Rook, and the ultimate local distribution of the many thousand young birds, which do, as I believe, annually leave the northern parts of Lincolnshire.

Rectory, West-Rasen, Lincolnshire, March 10th., 1851.

ON THE HABITS OF THE COMMON CROSSBILL, (*LOXIA CURVIROSTRA*.)

BY MR. ARTHUR HALL SHUM.

THE Crossbill is an occasional, though a very irregular visitor, in this part of the country; arriving about the beginning of October. In the year 1849, a considerable number made their appearance, and took up their quarters in a fir plantation, near this city. They remained about seven weeks, and then took their departure; not however till their ranks had been much thinned by the bird-catching fraternity; their capture being easily effected with the aid of a call-bird. If, however, the bird-catcher does not possess a call-bird, he stations himself beneath the trees that the Crossbills are feeding on, just at day-break, armed with a long slender stick, similar to a fishing-rod, and covered at the top with birdlime. By imitating their call-note, the poor birds are allured within reach of the magic wand; which renders their wings powerless, and they fall to the ground in their endeavours to escape.

Last autumn, a very small flock arrived about the usual time, but remained only for a few days: a pair of these that were then caught, I have since kept caged. For the first few days, they shewed their dislike to this change of life, in a manner not to be mistaken—beating their wings against the wires of the cage, and splitting the perches into fragments. They soon, however, began to appreciate a little kind treatment, and by a plentiful supply of hemp seed, (of which they are very fond,) together with their natural food, the cones of the fir tree, they became very tame and affectionate; so much so, that they will now feed readily from the hand, and are pleased at being noticed. For the common deal perches, I substituted rosewood ones, which even the powerful beak of the Crossbill has no effect upon. About the middle of January they commenced their song, which is very pleasing, consisting of some half-a-dozen notes, sung in a subdued manner, very similar to the recording of young Skylarks. When not feeding, they amuse themselves the whole of the day with singing, and climbing about the cage, in the manner of Parrots. Both the male and female sing.

Bath, March 15th., 1851.

NEST OF THE KINGFISHER, (*ALCEDO ISPIDA*.)

BY J. MC'INTOSH, ESQ.

AT page 22, of "The Naturalist," S. Hannaford, Esq., Jun., expresses his doubts as to the Kingfisher constructing its nest of disgorged fish bones. On

this subject I beg to make the following remarks:—It is not my intention to write the history of this interesting and singular bird, but simply to confine myself to its nest. That this bird does not construct a nest of disgorged fish bones, we had long ago proved to our satisfaction, but lays its eggs (from five to seven in number,) on the bare soil of the hole excavated by itself, (for which purpose, nature has provided it with the most efficient tool,) which it prefers to that constructed by any other animal; and will breed and rear its young in the same hole for years, like Rooks in a Rookery, if not too much molested.

The female, while engaged in the operation of incubation, is regularly fed by the male with fish. The bones, and other indigestible matter is ejected in pellets, after the manner of the Owl. These bones, disgorged by the male and female around them, while feeding their young, and other matters, by accumulation, become one solid mass, forming a sort of nest, in which the eggs are, the following season, laid; in which case we have frequently found them; and if we had not been convinced to the contrary, from personal observations, we should have been led to have believed otherwise. But we assert, without fear of contradiction, that this bird constructs the hole itself in preference to taking possession of any other, never forms a nest of disgorged fish bones, or anything else; but the first year of occupation, lays its eggs on the bare ground; and the second and following years, it levels this accumulation of matter, and lays its eggs on the same, which has given rise to a popular belief, and produced many conflicting opinions, that it first disgorges the said fish bones, and then lays its eggs upon them. We have frequently watched the Kingfisher for days in excavating its habitation in the most secluded nooks and sheltered spots of rivers—its mate, its only companion; and we have found them near the habitation of man, rear their young in the greatest confidence.

Charminster, Dorset, March 16th., 1851.

Ornithological Notes.

BY THE REV. R. P. ALINGTON.

Common Buzzard, (Buteo vulgaris.)—The Common Buzzard is easily domesticated, and soon becomes an amusing, though sometimes rather a dangerous companion. Yarrell relates a very remarkable anecdote of one, in his "British Birds," vol. i. page 78, sitting upon two eggs, and rearing the young of the common barn-door fowl, (vide vignette, page 80.) I, some years ago, had one confined in the same cage with a Merlin. The lesser Hawk had greatly the advantage of his more sluggish companion; he invariably took possession of the higher perch; (perhaps instinct, as the sequel proved, whispered that it was the safest place,) from hence, he could dash down, and generally be the first to secure the food. This was the cause of much jealousy; and one luckless day, the wary little Merlin was found dead, with his head split

in two, by his revengeful fellow-prisoner. Some time afterwards, the Buzzard was allowed his liberty, but he rarely ventured very far away, returning to his cage during the winter months: his usual abode was in a small wood near to the house. A straight walk ran through the wood, and when any person entered this walk, if the Buzzard happened to be at the other end, he would, with fixed wings, glide, as quietly as an Owl, swiftly down the avenue, about the height of the eye, and with out-stretched neck, approach so near the intruder, at such a speed too, that it required some nerve to withstand his attack; but, upon arriving within a foot of the face, he would gracefully turn away, and settle upon the nearest tree. One day he came in this way behind my father, and whether he knocked him down, or only knocked off his hat, I do not remember, but one or the other, and it sealed his fate: my Buzzard was doomed to be shot, and died accordingly, as incorrigibly dangerous, the following day.

The Kestrel, (*Falco tinnunculus*), and *Carrion Crow*, (*Corvus Corone*).—Most of your readers no doubt have often observed the Crow in pursuit of the Hawk—his quick and sudden turns to escape his noisy adversary; but, perhaps they may not have seen “the tables turned,” and the Hawk become the aggressor. Last Saturday, the 8th. of March, I was witness to a scene of this kind: a fine male Kestrel was in full chase after a Carrion Crow. How long the hunt had continued I do not know, but they came past me near to the ground. In vain the Crow tried to escape—his pursuer was always close upon him—up one side of the hedge, down the other, now high in air, now almost on the ground. At last the Crow made a dash through a small plantation, and the Hawk rose and settled on the top of one of the trees. The Crow had something in his bill when he crossed me. It is remarkable that the Hawk should have been a Kestrel, perhaps one of the most cowardly of the Hawks; probably the Crow may have stooped down and snatched his prey from him to make him so valiant.

A White Robin, (*Erythaea rubecula*).—At Mrs. Empson’s, of Ravendale, a parish adjoining Swinhope, may be seen a Robin all but entirely white. It comes to the window daily to be fed. I am told that it has been observed two years, and that a labourer saw it last summer sitting upon its nest. There is no distinction in colour between the breast and other parts; bill and eyes, the usual colour, and one of the primaries is slightly edged with brown.

Since writing the above, I have heard of another variety of the Robin; namely, one of a pale buff or fawn colour, with the breast of the usual colour. This has been lately seen in the parish of Swinhope. The peculiar delicacy of the plumage, sets off the brilliant red of his breast to great advantage.

Greater Black-backed Gull, (*Larus marinus*).—The Black-backed Gull is not an uncommon species on the coast at the mouth of the Humber. It is a curious fact, that while the young, commonly called the Wagel, is constantly seen inland, (indeed a flock of common Gulls, when feeding on the ploughed

lands, is seldom without one or more in their company,) I am not aware of ever having observed one in mature dress over the sea-bank. The Wagel too, while inland, is one of the least shy of the Gulls, but when he dons the plumage of the black back, he is, decidedly, one of the most wary.

Common Lark, (*Alauda arvensis*).—On Tuesday the 20th. of March, 1849, I was riding with a friend in the neighbourhood of Louth, in Lincolnshire, when I remarked to him, that a Common Lark was perching on the hedge by the road-side. I could not be mistaken in the species, as I was close to it; it rose, flew fifty yards, and again settled upon the hedge; being disturbed a second time, it lit, (the usual resting-place of the species,) upon the ground.

Swinhope Rectory, March 18th., 1851.

Ornithological Notes.

BY R. A. JULIAN, ESQ., JUN.

Occurrence of Honey Buzzard, (*Pernis apivorus*).—I received in July 1850, a very fine male bird of this species from Belbin, gamekeeper to the Earl of Morley. He informs me that he first observed it flying off a Pheasant's nest, in the cover adjoining his house, in which there was one egg sucked out, and another broken; he immediately set some gins, and caught it a few hours afterwards: on dissection, there was nothing decisive in its crop, but something which had much the appearance of grass or moss.

Marsh Harrier, (*Circus æruginosus*).—While Snipe-shooting on Dartmoor, December, 1849, I saw two of these birds; and a warrener there informed me that many years ago, in a very severe winter, he destroyed eight of them in one week.

Montagu's Harrier, (*Circus Montagui*).—I have a pair of these birds that were caught in a gin at Brushworthy Rabbit-warren, Dartmoor, October, 1839.

Great Gray Shrike, (*Lanius excubitor*).—One of these birds was shot, November, 1849, at Mrs. Walker's, Robourough, near Plymouth, by one of her servants, who, on seeing it was an unusual bird, immediately procured a gun and killed it. I never heard of more than one being obtained in this county before this bird.

Girl Bunting, (*Emberiza cirius*).—These birds are common in this neighbourhood (South Devon,) particularly in the vicinities of Yealmpton and Plymstock, residing with us all the year, and in winter feeding at corn stacks with the yellow species, which the female bird very nearly resembles. The male will sit singing on a favourite tree near the nest for hours together: the song is very similar to the commencement of the Yellow Bunting's, several times repeated; and the call note resembles the shrill chirp of the grass mouse. I

found a nest in July, 1850, in a steep bank, composed of moss lined with hair, and containing four eggs, round shaped, with very black streaks.

Nest of Kingfisher, (*Alcedo ispida*).—In the month of July, 1847, I dug out a Kingfisher's nest in the bank under Orchardring wood, River Erme, containing seven well-fledged young; the hole had the appearance of a deserted water-rat's; there was not the least sign of a nest, but merely an enlargement of the hole, and a small pit scraped out almost three feet from the entrance, which was nearly filled with their excrements. I discovered it by the constant chirping the young ones made.

Squacco Heron, (*Ardea comata*).—A fine specimen of this bird was shot by Sir Frederick Roger's gamekeeper, many years ago, on a very large pond, almost close before his windows, at his seat, Blatchford, near Ivybridge, Devon. He had it preserved, and a label attached to the case, stating the time it was killed, which unfortunately had been lost, when I saw the bird.

Occurrence of the Green Sandpiper, (*Totanus ochropus*).—My father shot one of these birds, now in my collection, on the River Erme, August 15th., 1849. I shot a female bird on Lara, just at the mouth of the River Plym, August 17th., 1850.

Pigmy Curlew, (*Tringa subarquata*).—Young birds of this species were not uncommon at the mouths of rivers in this neighbourhood, in the months of September and October, 1850. On the River Lynher I saw near forty of these birds in one flock, but they usually keep in company with Purres and Ring Dotterels, from which they can easily be distinguished when on the wing, by their white rumps. I obtained six specimens in one morning.

Landrail, (*Rallus crex*).—The Pointers found to day, (September 16th., 1848,) a Landrail in a short thick hedge near Ermington, but all we could do by brushing and beating the bushes, would not make it fly; it kept running forward and back, until at last my friend caught it as it was passing him. Upon examining it, we found it was so very fat that it could not fly, and when thrown into the air, it came down almost perpendicularly. As I was trying a clover field for Partridges near Ivybridge, September, 1849, the dogs flushed a Landrail, which flew up and perched on one of the branches of a tall oak tree, and screened itself as much as was possible among the leaves, where it was shot by my friend, the Rev. C. Bulteel.

Occurrence of the Pink-footed Goose, (*Anser brachyrhynchus*), in Cambridgeshire. Whilst at Emmanuel College, Cambridge, January 1850, I procured a fine specimen of this rare species of Goose. It was caught by a labourer on the banks of the Cam, below Upware, having been wounded by a large-sized bullet, in the breast.

Occurrence of young Northern Divers, (*Colymbus glacialis*).—I shot two of these birds in Plymouth Sound, December, 1850. There were several others seen there about the same time.

Little Auk, (*Mergalus alle*).—One of these birds was knocked down by a boy, with a stone, under Plymouth Hoe, December, 1850. It was taken to Mr. Bolitho, Bird and Animal Preserver, Plymouth; who has it in his private collection.

Lara House, Plymouth, March 17th., 1851.

HERONRIES IN ENGLAND AND SCOTLAND, WHICH ARE IN EXISTENCE, OR HAVE EXISTED.

BY J. MCINTOSH, ESQ.

Our object in offering the following list of Heronries which are, or have existed in Great Britain, is to compare, through the pages of "The Naturalist," the decrease in numbers of this once noble bird of the chase. At the same time we are aware that our list is anything but complete, and will therefore feel thankful for any additional information on this subject through the pages of "The Naturalist."

- | | |
|---|---------------|
| 1. Upton House, Poole, | Dorset. |
| 2. Brownsea Island, | Do. |
| 3. Bryanston Park, | Do. |
| 4. Admiston Hall, (small one) | Do. |
| 5. Dewlish, (not now in existence) | Do. |
| 6. Kingston Lacy, | Do. |
| 7. Sherborne Park, | Do. |
| 8. Didlington Hall, | Norfolk. |
| 9. Parham, | Sussex. |
| 10. Hurstmonceaux, (small one) | Do. |
| 11. Penhurst Place, | Kent. |
| 12. Cressy Hall, | Lincolnshire. |
| 13. Swanpool, | Do. |
| 14. Downington-in-Holland, | Do. |
| 15. Dunham, near Altrincham, | Cheshire. |
| 16. Hutton, near Beverley, | Yorkshire. |
| 17. Swanland, near Hull, | Do. |
| 18. Walton Hall, | Do. |
| 19. Dallam Tower, | Westmorland. |
| 20. Gobay Park, near Penrith. | |
| 21. Walton-on-Thames, | Surrey. |
| 22. Coley Park, | Berks. |
| 23. Reading, (near to,) | Do. |
| 24. Windsor Great Park. | |
| 25. Brockley Woods, near Bristol. | |
| 26. Picton, (the Seat of Lord Carnarvon.) | Somerset. |

- | | |
|---|---------------|
| 27. Sharpham, on the River Dart. (See page 23
of the Naturalist, No. 1.) | } Devonshire. |
| 28. Heron Court, | |
| I believe at one time a very large Heronry existed here. | |
| 29. Newport House, | Galway. |
| 30. Findhorn, | Morayshire. |
| 31. Dalkeith, near Edinburgh. | |
| 32. Craigie, near Kilmarnock, | Ayrshire. |

Although, having lived in the north of Ireland for some time, we are acquainted with only a single Heronry; perhaps some Irish correspondent will be kind enough to favour us by recording any others that may exist.

The Heron is not particular as to the trees it selects to construct its habitation in, as we find them in fir, beech, oak, and elm trees. Mr. Wood, of Admiston Hall, near Piddletown, Dorset, some time ago informed me, that, having shot a Snipe, he was walking to pick it up, when a Heron, which he had not previously seen, pounced upon the Snipe, shook it in his bill, like a dog with a rat, evidently not satisfied that it had received its death blow, and was just about to make a mouthful of the said Snipe. When Mr. Wood approached, he dropt it, and flew off, leaving Mr. W. in possession of his game. They are particularly fond of the Common Rat, (*Mus decumanus*,) the Water Vole, (*Arvicola amphibius*, Desmer,) when they can get hold of one; killing them like a terrier dog, and casting or ejecting the hair and bones in pellets, like the Owls. To this we may add the following fact related by Dr. P. Neill, of Cannonmills, near Edinburgh. This gentleman had a pair of these birds tame, which he found devoured the young of the Moor-hen, (*Gallinula chloropus*, Lath.) which built and reared their young on an old willow stump, that had fallen into the pond.

The Heron is not at all particular as to its 'bill of fare'—*toads, frogs, snakes, mice*, fish of all sorts and sizes; (we once watched a Heron standing in a shallow part of a lake, seize and devour, in the short space of half-an-hour, six good-sized carp,) water newts, and the roots of aquatic plants, as *Caltha palustris*, L., also the flowers of *Sparganium*, Swm. Anciently the Heron was held in great estimation as food, (as also the Crane,) being one of the favourite dishes at the royal and noble tables; and valued at the same rate as the Peacock, (*Pavo cristatus*,) and the Pheasant, (*Phasianus colchicus*.) Some epicures of the present day are said to consider them a rare and dainty dish.

Charminster, Dorset, March 10th., 1851.

THE PROGRESSIVENESS OF INSTINCT.

TO THE EDITOR OF THE NATURALIST.

WHILE preparing my contribution to your last number, on the subject of the Moor-hen, an old thought recurred, that the construction of the nest in the

lower branches of a stunted fir, established a questionable point, namely, the natural progressiveness of instinct. The docility, or the capability of instruction, of many animals, admits of no doubt; but the advancement of their powers, by the deductions of experience, and the spontaneous acquirements which destroy the uniformity of instinct, extend the bounds of their irrational faculties beyond the sphere which is usually assigned them.

Some twenty years since, I remember to have seen in a quarto manuscript volume of my late father's, a rough sketch which he had made of a row of young Owls, each successively decreasing in size in regular gradation; with a story of singular interest regarding a nest of Owls in a neighbour's barn, which I understood he had seen. I have consequently searched over a large mass of manuscripts on Zoological subjects in vain. My investigation, however, has not been wholly without avail; for by it I have met with the original letter, addressed to him, nearly twenty years since, by a person whom I have known from his youth upwards. He is an intelligent auctioneer of this neighbourhood, and then resided within half a mile of my residence. Those who were then his father's servants can probably attest its truth. It is dated 10th. August, 1833.

"The careless nest of the White Owl is generally built on the side wall of a barn, where it commonly lays three eggs, of which more than two are seldom hatched, the remaining egg being addled. It may not be extensively known that the eggs of the barn-door pullet are occasionally hatched under Owls, the legitimate produce being removed for the purpose. Twice have I known the experiment tried, and three of each set of eggs hatched. Of the six chickens four were reared; and as wonderfully illustrative of the provident habits of the bird, before the progeny was hatched, the expectant parents were unusually active in catching rats and mice, as provender for their future family. Immediately afterwards the same Owl laid ten eggs; an affair that progressed in the following manner:—When she had laid one egg she began to sit, and thus she continued laying an egg daily for the first seven days, all which were hatched at the respective expirations of the incubant period. The eighth egg was addled, and the ninth and tenth were hatched as before, each in daily succession. The tenth bird was weak and died." I send you the writer's name and address with my own.

Such a systematic precaution to protect its natural brood from threatened extinction, appears to spring from a region of thought far beyond the commonly prescribed limits of instinct. It was not only a rational contemplation and dread of its possibility, with a calculating effort to obviate it; but a mysterious combination of the animal and intellectual faculties usurped the simple impulse to ordinary action. The *end* was instinctive, but there was a cogitative and complicated effort to attain it.

J. C.

Black Hall, Devon.

CONTRIBUTIONS TO THE FAUNA OF FALMOUTH.

BY W. P. COCKS, ESQ.

(Continued from page 40.)

Redstart, (*Phænicura ruticilla*), *Gould*.—May 9th., 1849, a male bird on the naked branch of an oak tree, Carne's lane; Mr. May saw two the same week in a field close to his house; and shot one October 29th., 1846. One seen by him on the Pilot Boat Inn, November 22nd., 1846. Shot three birds within a yard of each other, November 22nd., 1847: not common.

Black Redstart, (*Phænicura tithys*), *Gould*.—Shot near Swanpool, in May, 1847: rare.

Stonechat, (*Saxicola rubicola*), *Flem*.—Gwyllyn Vase, Swanpool, Pennance, etc., not uncommon. December 23rd., 1849, a female bird, Swanpool Beach.

Whinchat, (*Saxicola rubetra*), *Flem*.—Furze downs, near Swanpool and Pennance. One was shot by F. Passingham, Esq., May, 1846, near Swanpool.

Wheatear, (*Saxicola ænanthe*), *Selby*.—Not uncommon.

Grasshopper Warbler, (*Salicaria locustella*), *Selby*.—Captain Bull's estate, Mr. Bullmore's farms, College wood, etc.; not uncommon in summer, but very difficult to procure.

Sedge Warbler, (*Salicaria phragmitis*), *Selby*.—Reeds or marshy districts, College wood, Swanpool, Mainporth, etc.: not uncommon.

Reed Warbler, (*Salicaria arundinacea*), *Selby*.—College wood pond, and Swanpool reeds: rare.

Blackcap Warbler, (*Curruca atricapilla*), *Flem*.—Scarce. A female specimen was shot at Swanpool, November, 1842.

Garden Warbler, (*Curruca hortensis*), *Flem*.—Hedgerow, near Mr. Selley's Cottage, Budock: rare.

Whitethroat, (*Curruca cinerea*), *Selby*.—Common. This year unusually so—I saw the parents and five young ones, (at the same time,) on the twigs of a small tree, in a lane leading to Mr. Jago's farm-house.

Lesser Whitethroat, (*Curruca sylvicola*), *Flem*.—Two seen in Mr. Selley's second field leading to Budock Church, March 14th., 1848.

Wood Warbler, (*Sylvia sylvicola*), *Penn*.—One specimen shot in the wood, Trefusis, near Mylor, 1846.

Willow Warbler, (*Sylvia trochilus*), *Penn*.—College wood, Furze brake, Budock: scarce.

Chiff Chaff, (*Sylvia hippolais*), *Penn*.—Not common. Mr. May shot one on December 12th., 1849. The 22nd. of the same month, one was shot at Swanpool, by Mr. Williams.

Dartford Warbler, (*Melizophilus Dartfordiensis*), *Selby*.—Rare. May 15th., 1848, one on the top of a furze bush, Mr. Selley's first field leading to Budock Church.

Golden-crested Regulus, (*Regulus cristatus*), *Flem*.—College wood, Harriett Place, etc.: not uncommon.

Fire-crested Regulus, (*Regulus ignicapillus*), *Jenyns*.—Rare. One shot by a boy in College wood, January, 1846.

Great Tit, (*Parus major*), *Penn.*—Not uncommon.

Blue Tit, (*Parus cæruleus*), *Penn.*—Common.

Cole Tit, (*Parus ater*), *Mont.*—College wood, Love lane, etc.: scarce. A specimen was sent from the parish of Constantine for examination, 1847.

Marsh Tit, (*Parus palustris*), *Bewick*.—College wood, Budock bottoms: scarce.

Long-tailed Tit, (*Parus caudatus*), *Penn.*—College wood, Love lane, etc.: not uncommon. December 23rd., 1849, six in a lane, near Boslowack House.

Bohemian Waxwing, (*Bombycilla garrula*), *Flem.*—Shot near Pennance Point, in the winter, 1847.

Pied Wagtail, (*Motacilla Yarellii*), *Gould.*—Common.

White Wagtail, (*Motacilla alba*), *Gould.*—Not uncommon. Three procured in the vicinity of Falmouth, by Mr. J. Trathan, April, 1843. I have procured specimens in the years 1845-6-7-8-9. Mr. May shot three specimens for me, (from a flock consisting of more than thirty birds,) in March last, Gwyllyn Vase. December 23rd., 1849, several on the sands, Swanpool: this season very common.

NOTE.—March 23rd., 1845, one with the plumage of the back, head, abdomen, etc., pure white; tips of quill feathers, tail feathers, legs, toes, and bill, black. It had all the locomotive twitches of its family; and kept at all times at a respectable distance from its companions.

Grey Wagtail, (*Motacilla boarula*), *Penn.*—Not uncommon.

Grey-headed Wagtail, (*Motacilla neglecta*), *Gould.*—Pond, foot of Castle Hill, College wood: rare.

Ray's Wagtail, (*Motacilla flava*), *Penn.*—Mrs. Glasson's stable-yard, Green bank, 1845, College wood, 1846, Pennance, 1847, Erisey and Middle Terrace, August 31st., 1849: rare.

Tree Pipit, (*Anthus arboreus*), *Selby.*—Furze patches, east of Pendennis Castle, April, 1846: rare.

Meadow Pipit, (*Anthus pratensis*), *Flem.*—Common.

Rock Pipit, (*Anthus petrosus*), *Flem.*—Gwyllyn Vase, Swanpool, Pennance, etc.: common.

Skylark, (*Alauda arvensis*), *Penn.*—Common.

Woodlark, (*Alauda arborea*), *Penn.*—Not uncommon.

Snow Bunting, (*Plectrophanes nivalis*), *Selby.*—Shot near Falmouth, by T. Harvey, Esq. Mr. Copeland informed me that he shot one at Pendennis Castle, October, 1843. Three shot by Mr. May, within the last three years, between the Castle and Pennance Point.

Common Bunting, (*Emberiza miliaria*), *Penn.*—Common.

Black-headed Bunting, (*Emberiza schoeniclus*), *Selby.*—Scarce. January 16th., 1850, one at Swanpool.

Yellow Bunting, (*Emberiza citrinella*), *Penn.*—Common.

(To be continued.)

Notes.

BY SAMUEL HANNAFORD, ESQ., JUN.

Anecdotes of Dogs.—A farmer residing near Worksop, Nottinghamshire, had a dog which had formerly been the property of a carrier, and in the habit of accompanying his master to market with the cart, every Saturday; but, although he had changed masters, he did not forget his old habits; and every Friday night, started off to the carrier's residence, to accompany him on the Saturday. He always returned home on Sunday morning, and generally brought something in his mouth, as if to satisfy his master as to the cause of his absence.

A friend of mine has a Spaniel in the habit of accompanying him in his daily walk; on Sunday mornings, however, as soon as the bell commences for service, the Dog goes to his master's room, and there remains under the bed, until his return from church.

A Spaniel suckling a Kitten.—I had a Spaniel bitch, which, with her pups, was confined in the same apartment with a Cat and her Kitten. The Cat having absented herself one day rather longer than usual, the Kitten sucked the bitch, which was sleeping at the time; to this she quietly submitted: and a friend here in Yorkshire, tells me he reared two Rabbits taken from a plantation adjoining his house, under a Cat, which tended them with care, and apparent fondness.

Anecdote of a Rat, (Mus decumanus.)—A relative of mine placed a rush-light in a basin, on a chair, in the middle of his bed-room, and was awoke in the night, by a great noise; on turning out, he found that a Rat had dragged the rush-light, which remained lighted, from the candlestick, under the bed to his hole, and had already got a portion into it. They are often so voracious, as to devour one of their own species which has been caught in a trap; as I have proved very lately.

On a Water Rat, (Arvicola amphibius.)—The tide happening to overflow the banks of the River Dart, in Devonshire, I saw a Water Rat convey its young, one by one, to a place of security, squealing piteously all the while.

On Mice.—All the Crocus roots in our garden have been destroyed by Mice, this winter, (1850-1.) They appear to have dug down to the very root, as if that was the favourite part; leaving the flower and stem untouched. I have found, on dissection, the remains of the lower part of the stem undigested.

Goshawk, (Falco palumbarius.)—Since reading in "Morris's British Birds," page 136, that there is but one occurrence of this bird on record in Yorkshire, I have made numerous inquiries on the subject. Several persons have told me of having seen them, and of their breeding in this neighbourhood, but I could place little reliance on their statements. To-day, however, I was informed by

a man, who was formerly a gamekeeper on the Kiveton estate, that about five years since, in the spring, he shot a very fine specimen of this bird, at Anston Stones, (about two miles from where I write.) He was in the act of shooting a Magpie, which, much to his surprise, remained quite motionless, and, as he termed it, 'scared.' On looking upwards, he saw a large Hawk soaring at a great height above him; as it approached him, he fired and brought it down; when it proved to be a Goshawk. The Magpie was so alarmed, that it remained perfectly still on the ground, heedless of the report of the gun, and consequently met with the same fate as the Goshawk. I feel sure this may be relied on, as the keeper gave me such an accurate description of its plumage, etc. There was another Bird of the same kind in company with the one shot, but it was never seen after. These were the only ones of the kind he had ever seen in this part.

May not the bird, above referred to, prove to be the Peregrine? It would be well if the fate of the specimen could be traced, so as to determine the species with certainty.—*B. R. M.*

Ash-coloured Harrier, (*Circus Montagui*).—Male and female shot 27th. May, 1850; near Alson, Hants. Male, seventeen inches from head to tail; three feet four inches expanse of wing. Female, nineteen inches from head to tail; three feet six inches expanse of wing.

On an Owl.—Two of my friends were walking near Sharpham* Lodge, Totnes, Devonshire, a few years since, when one of them saw an Owlet in the hedge, which he captured. It immediately set up a loud, shrill cry, when he was suddenly struck with great force, in the face by the female bird, attracted to the place by the cries of its young one; and before he had time to recover his surprise, the attack was repeated; and continued until he dropped the young bird; and even then the female flew after him for a considerable distance.

On the Kingfisher, (*Alcedo ispida*).—Rennie, in "Bird Architecture," page 28, says "Kingfishers are by no means numerous; there being probably as many Bank Swallows in one colony, as Kingfishers in the empire." I have, on a morning, frequently seen a dozen on the banks of the River Dart, in Devonshire, whilst fishing, and along a mill leat, near Totnes, Devonshire, about half-a-mile long. A friend writes me they are very plentiful also on the banks of the Kennet, in Wiltshire: they are also numerous in this neighbourhood, (Kiveton Park;) frequenting mill-dams and the banks of the Chesterfield canal. Several have been shot at a mill near Beighton, about four miles from this. I have often noticed, on coming suddenly on a Kingfisher, that instead of flying off, he, by some means or other, manages to conceal the more brilliant parts of his plumage, so as almost to escape detection; and with his bill pointed upwards, remains perfectly motionless, and can, with difficulty, be got to relinquish his position.

*On the Jackdaw, (Corvus monedula).—*Rennie, page 41, of the same work, questions the assertion of Sonnini, that these birds prefer a *church* to nestle in, to any other building. I can only say that I never saw them build but in *churches*. In my native place, Totnes, Devonshire, there have been great numbers of them, as long as I can remember, in the church tower. Bewick, vol. i. page 76, says "They frequent churches, old towers, and ruins."

*Rearing of Cuckoo, (Cuculus canorus).—*There are so many accounts on record, authenticated by Jenner, White, Willughby, and others, of young Cuckoos being fed and reared by Hedge Accentors, Titlarks, Wagtails, etc., that I can scarcely look upon the fact recorded by Mr. Mc'Intosh, in No. 1, of "The Naturalist," as one of *general* occurrence. I have, myself, (in May last,) seen a young Cuckoo, just able to fly, attended in its flight and *fed* by a Hedge Accentor; and it is a common thing for the female bird to hover round the nest, where she has deposited her egg, as if to ensure its safety. Although she does not hatch her young, it would be wrong to suppose her void of all parental feeling for them; and the case in point only proves that she watches over her young with the same care as any other bird; for the moment it was deserted by the Hedge Accentor, she was on the spot to take its place, and provide nourishment for her offspring. Although this rare occurrence must prove highly interesting to ornithologists, yet I am inclined to think the frequent recurrence of it very doubtful.

*Nests of House Pigeons.—*Referring again to Rennie's assertion, in "Bird Architecture," page 118, that this bird "selects hay or straw instead of twigs;" and page 119, "never uses twigs." On examination of several nests of last year, in a pigeon cote, I found them all composed of straw and *fir twigs*, the latter being very numerous. To obtain these fir twigs, they must fly to a plantation, several hundred yards from the house, whilst hay and straw might have been obtained close to their cote.

*On a Yellow-hammer, (Emberiza citrinella).—*A Yellow-hammer flew to some friends of mine, who were walking near Todwick, Yorkshire, crying piteously, much to their astonishment at first, but on looking upwards, they perceived a fine Sparrow-Hawk hovering in the air. He—

"On his pinions lay,
Like a stooped falcon, ere he takes his prey."

And it was with great difficulty he was driven from his object.

*Green Woodpecker, (Picus viridis).—*A very fine specimen shot near Thorpe, by the gamekeeper; which I have, stuffed, in my possession. When brought to me, the tongue protruded more than an inch and a half from its mouth. There is a singular mechanism connected with its tongue, by which it is enabled to dart it out to a great length in feeding.

*The Partridge, (Perdix cinerea).—*Last season there was a nest in the whin-cover plantation in Kiveton Park. A dog once attacked the female

bird, as she sat in her nest with her young. She immediately left the nest and limped away, as if wounded, to induce the dog to follow her; but as soon as she found that he still pursued her young, she returned and defended them so successfully, as quite to repel the dog.

Great, or Solitary Snipe, (*Scolopax major*).—A fine specimen was shot near Dover Castle, on Mr. Prescott's farm, measuring eighteen inches from tip to tip.

Great Northern Diver, (*Colymbus glacialis*).—"A specimen, shot at the mouth of the Spey, was found to have in his pouch no fewer than nineteen flounders and a salmon-trout." *Illustrated London News*.

The Cormorant, (*Phalacrocorax carbo*).—Mr. Plunkett, son of Lord Plunkett, fired at one in the county of Mayo, on the wing, with a rifle; and having shot it in the neck, the bullet cut in two a large eel, which the bird had in its throat at the time.

Voracity of the Trout.—I have seen a Trout, four pounds weight, seize a Water Rat. The fish was caught soon after, with the Rat inside.

On the Flounder, (*Platessa flesus*).—Mr. Rennie, in a note to Izaak Walton, says, "The taking of Flounders with a rod and line, is a thing so accidental, that it is scarcely worth the mention." I have myself taken very many with rod and line, baited with a worm; and have seen hundreds caught in that way.

Artificial Flies.—There are numerous instances of birds taking the Artificial Fly. A gentleman, who was fishing at Netherthorpe, last summer, caught a Swallow on each of his flies; and at every cast of the line he was surrounded by numbers of them. A friend of mine once caught an Eel with an Artificial Fly, as he was fishing in shallow water; and I know many instances of Bats being caught in attempting to seize the fly.

Ivy-leaved Toadflax, (*Linaria pilosa*).—Found a specimen, quite white, in Worksop Manor gardens, in September 1850; similar, in every other respect, to the pink, so common on old walls in many parts of the country.

Kiveton Park, Rotherham, April 11th., 1851.

Miscellaneous Notices.

Hare and Rabbit.—In my private 'Naturalist,' I find the following note from the "Perthshire Courier," for 1849; and shall feel obliged if any reader of this Magazine can record a similar instance, or any knowledge of the same. We have kept Hares and Rabbits in the same box together, but never knew them to intermingle; nor can we altogether credit, (we may be wrong) what follows:—"In 1849, a Hare was shot, apparently a cross between it and a

Rabbit, the body partaking most of the Hare, and the head of the Rabbit. The flesh was also of a composite character. It has hitherto been supposed by naturalists that these races do not intermingle. The specimen is stuffed, and may be seen at Mr. Ancells." Mr. Bell, in his valuable "History of British Quadrupeds," page 350, says, "Every attempt to produce a breed between the Rabbit and the Hare has hitherto failed."—*J. Mc'Intosh, Charminster, March 16th., 1851.*

Bearing on the subject of this notice, we may remark that some little time back, an animal was sent to Mr. D. Graham, of this city, which had very much the appearance of what you would expect a hybrid between the Hare and Rabbit to exhibit. Its head and feet, particularly, were like those of the Hare, while its general character was that of the Rabbit. We had only opportunity for examining it stuffed, and cannot, therefore, speak as to the nature of the flesh, or its osteological peculiarities. It was obtained on the estate of G. Lloyd, Esq., Stockton Hall, near York, in whose possession it now is.—*B. R. M.*

I should feel exceedingly obliged to any of your correspondents, who would forthwith collect together and set forth the different authorities for or against the admission of the following as British Birds:—*Lanius borealis*, (Greater Northern Shrike);—*Muscicapa albicollis*, (White-necked Flycatcher);—*Loxia leucoptera*, (American White-winged Crossbill);—*Loxia astrild?*—*Salicaria luscinioides*, (Eggs and nidification in England, etc.);—*Sylvia hippolais*, *Temminck*, (Melodious Willow Wren);—*Sylvia orphea*, (Besides in Yorkshire, *Quere*);—*Anthus spinoletta*;—*Cettia altisonans*, (Cetti Warbler);—*Alauda rubra*, (Red Lark);—*Emberiza vidua*, (Red-billed Whidah Bird);—*Euplectes ignicolor*, (Crimson Weaver Bird);—*Gracula religiosa*, (Minor Grackle); *Picus villosus*, (Hairy Woodpecker); *Picus medius*, (Middle Spotted Woodpecker);—*Apternus arcticus*, (Northern Three-toed Woodpecker);—*Alcedo alcyon*, (Great Belted Kingfisher);—*A new Swallow*, (See "Zoologist," page 1550);—*Acanthylis caudacuta*, (Australian Spine-tailed Swallow);—*Lagopus rupestris*, (Rock Grouse. Specific distinctions?);—*Perdix Marylandica*, (Virginian Colin); *Otis M'Queenii*, (or, Houbara); *Scolopax Brehmi*, (Specific distinctions);—*Cygnus atratus*, (Black Swan);—*Fuligula mariloides*, (Vigors);—*Dendronessa sponsa*, (Summer or Tree Duck);—*Erismatura mersa*, (White-headed Duck);—*Phalacrocorax graculus*, (Black Cormorant);—*Sterna velox*;—*Larus Rossii*, (in Ireland, *Quere*, as well as in Yorkshire);—*Pelecanus onocrotalus*, (Pelican);—*Psophia crepitans*, (Trumpeter).—*F. O. Morris, Nafferton Vicarage, Driffield, April 8th., 1851.*

Occurrence of Bohemian Waxwing, (*Bombycilla garrula*, Penn.) near Northallerton.—Two very fine specimens of the Bohemian Waxwing, were shot at Swainby, a small village, about twelve miles from Northallerton, on the 10th. of March, 1850. Three birds were seen, but only two were obtained.—*F. R. Gibbes, Northallerton, March 20th., 1851.*

The Purple Heron, (*Ardea purpurea*), near Leeds.—I am informed by H. Denny, Esq., of Leeds, that a fine male specimen of this bird was shot on the 24th. of May last, in a field at Temple Thorpe, near Leeds, by Mr. Henry Joy, the owner of the farm, who had observed it two or three times the same day in different fields. Mr. Denny saw it the same afternoon.—*B. R. M.*, York, March 27th., 1851.

Occurrence of the Gadwall, (*Anas strepera*), in Yorkshire.—Of this extremely rare Duck, two very beautiful specimens were procured in the York market, on March 10th., by Mr. D. Graham, and have been admirably mounted by him. They were obtained from the Humber a day or two previously. The Gadwall is one of our most elegant Ducks, and its very delicately-marked plumage is most agreeable to the eye, as is, we believe, its flesh to the palate of the *gourmand*. I regret that the sexes were not determined.—*Idem*.

Proceedings of Societies.

Royal Physical Society of Edinburgh, March, 1851.—The monthly meeting of this Society took place on Wednesday, the 6th. instant, at 6, York Place,—DR. COLDSTREAM in the chair,—when the following communications were read:—

I. PROFESSOR GOODSIR exhibited a specimen and described the structure of a new compound ascidia, allied to *Diazona*. This animal was discovered last autumn in the Sound of Skye by Professor Edward Forbes and the author, in the course of a dredging cruise with Robert Macandrew, Esq., of Liverpool, and is the largest species of the group hitherto observed in the Atlantic.

II. MR. R. F. LOGAN read the Report of the Entomological Committee on the Order *Lepidoptera*, for the year 1850, and prefaced his remarks by requesting the Society to allow another season for the compilation of the list of Scottish Lepidoptera, during which it might be made more accurate and complete, and in every way more satisfactory, than if produced at present. Thereafter he proceeded briefly to detail the results of the excursions and observations of the Committee during the past season, which was one of the most favourable that the Lepidopterist has experienced in this part of the kingdom for a series of years, there having been almost a total absence of windy or long-continued wet weather, both of which are the most unfavourable descriptions the entomologist can meet with. In the early spring *Larentia multistrigaria* was abundant on Arthur's Seat, flying in numbers at night over the patches of gorse, among which one night a single specimen of *Depressaria Ulicetella* was also taken, which had, no doubt, hibernated since the preceding autumn. As early as the middle of March, and just after a slight fall of snow, which the sun's rays had dissolved, *Elachista pulchella* was observed skipping about on the short turf among the rocks on Arthur's Seat, along with its mate, which looks like a different species, but which is undoubtedly the male of the same, as they always occur together, the specimens typical of *Pulchella* being all females, while the others are invariably males. A few specimens of *Depressaria Alstromeriana* occurred about Duddingston, in April, one of the most beautiful of this most interesting and natural genus, the indigenous species of which have been nearly doubled within the last four or five years, by the industry and assiduity of some of the English entomologists; and in the beginning of May, the minute *Neptidea gratiosella* was not scarce in whitethorn hedges, flying actively round the twigs in the sunshine. On the 31st. of May, Mr. Logan paid a visit to Whittingham, in East Lothian, and the same evening, in company with Mr. Hepburn, found *Emmelesia albularia* and *Phoxopteryx Lundana* in profusion in the haughs of the Whittingham Water, among *Petasites vulgaris*, &c., where they also found a single specimen of the singular *Elachista testaceella*, (*Lophonotus fasciellus*, St.) and one of the new species of *Eupithecia* which Mr. Doubleday has named *Palustraria*. On the following day, June 1st., they visited Pressmenan Copse, and Deuchry Dodwood, on

the side of the Lammermoors, and on this fine old ground, found the beautiful *Lithocolletis Spinoletta* not scarce in some dwarf Sallows, along with *Grapholita campoliliana*, and one specimen of *Tinea bistrigella*. *Phloxodes frutetana* was abundant in the birches, and *Tortrix ministrana*, *Ephippiphora Scutulana*, *Nematopogon Panzerella*, *Adela viridella*, &c., &c., occasional among the underwood. In the following week a portion of the Committee went by rail to Tranent, and walked thence to the village of Ormiston. On the way thither, they found abundance of *Acophora quadripunctella* in the wild roses in the hedges, and in a small wood at the east end of the village, noted besides for producing the beautiful plant called Solomon's Seal, they found a great variety of interesting species. One of the most beautiful of these was *Tinea luzella*, discovered here some years ago by Mr. Howden, and not recorded as having been found elsewhere in Scotland. It was some time before they found it, having gone to the wrong corner of the wood, but in the meantime, in a spot carpeted with *Ajuga reptans* and other plants, they found the little bronze-coloured *Micropteryx Calthella* and *Adela Fibulella* flying in the sunshine, and presently one specimen, and then another, of the beautiful *Luzella*, which has a very striking appearance when on the wing, the bright silver bars shewing distinctly on the dark purple wings, in consequence of its slow, soft flight. As they proceeded eastward into the more shady part of the wood, they found it more abundant, rising from among a profusion of the young foliage of *Egopodium podagraria* and *Spiraea Ulmaria*. They found several *Tineidae* likewise on the trunks of the trees, and in the meadow beyond the wood, again met with the active little *Eupithecia palustraria*. Altogether, on this day, about twenty-five or twenty-six species were taken. The next excursion was on the 15th. of June, to the moorland district near Kirknewton, where *Argyroplegia Baumanniana*, *Eupithecia Callunaria*, and a number of other species occurred, and *Coccyx Hercyniana* was flying in swarms round the spruce firs in the plantations.

Towards the end of June, the beautiful *Pyrausta cingulalis*, better recognised perhaps, by its very appropriate English name of Silver-barred Sable, made its appearance on the Helianthemum and Thyme-covered slopes of Arthur's Seat, along with *Pempelia subornatella*, which feeds on *Thymus Serpyllum*, *Sericoris Cespitana*, which feeds on the Dwarf Cistus and *Gelechia Artemesiell*, which, upon Arthur's Seat, has nothing whatever to do with *Artemesia*, but probably feeds on *Helianthemum*, or some other low-growing plant. In the month of June, *Dianthæcia conspersa* and *Carpophaga* had been taken by Mr. John Nelson, at Kirkland Hill, near the mouth of the Tyne, East Lothian, both rare insects, and the latter probably new to Scotland.

On the 6th. of July, Torwood, in Stirlingshire, was explored, and though the day had been very wet, shortly after it fared, *Argyresthia conjugella* appeared flying round the mountain-ash trees, and *Tinea lutarella*. var. around the birches. Several specimens of *Ornix Scotiella* occurred, which feeds on the mountain-ash, though it was rather late to meet with it in perfection. In addition to the foregoing species, *Tinea bistrigella* occurred again,—a single specimen. Numbers of *Elachista albifrontella*, *Coleophora albicosta* in the gorse, and *Elachista festaliella* near brambles. On the 19th. of July, in Glen Clova, Forfarshire, on the mountain sides carpeted with *Alchemilla alpina*, and studded in the moister parts with *Narthecium ossifragum*, *Saxifraga aizoides*, *Stellaris*, and the many other beauties of alpine and subalpine flora; on large weather-beaten blocks which had descended from the hills, numerous specimens of *Aplocera casaria*, *Emmelesia Ericetaria*, and *Coremia Munitaria* were resting, flying off as they were approached, frequently to a considerable distance. *Botys fuscalis* was here in abundance; and in ascending to one of the corries three specimens of the rare *Scopula alpinalis* occurred. The want of sun, however, at the time, was very unfavourable to the appearance of many of the minute moths, which delight in his warm beams quite as much, apparently, as the strictly diurnal butterflies, of which not one was seen.

In ascending Corstorphine Hill one day in the beginning of August, a member of the Committee found no less than four specimens of the rare *Aplecta occulta*, resting on the trunks of trees; and about the same period, while on a visit to the Bass Rock, he found the chrysalis of a *Noctua*, under a stone, above the cliffs, which subsequently produced the rare *Hadena lutulenta*, an interesting addition to the insects of Scotland.

On August 10th., in a valley among the Lammermoors, in East Lothian, *Eupithecia Sobrinata* abounded among the juniper bushes, but it was found no easy matter to net a sufficiency of specimens, from their extreme activity. In this valley a wasted specimen of *Polyommatus Artaxerxes* also occurred, which was at one time imagined to be peculiar to Arthur's Seat; and

at the side of a field near Pressmenan, *Dicrorampha Petiverana* was found in abundance, among grass and Galium, along with the variety described by Curtis as a different insect, under the name of *Carpocapsa Stelliferana*, which was nearly equally common with the typical variety.

In walking along the shore between Grangemouth and Bo'ness, a few days after this, on a sandy knoll surrounded by salt marsh, near the Dundivan Ironworks, several specimens of *Gelechia instabilella* were found, discovered some years ago by Mr. Douglas, of London, in similar situations in the county of Essex,—since found at the mouth of the Thames, and in Ireland, and now recorded for the first time as Scotch. Subsequently to this, the Committee had several other excursions,—one to Torwood, where they had their usual accompaniment of plenty of rain, but found *Argyresthia Spinicella* Zel. in profusion in the same mountain-ash trees in which they had found *Conjugella* in July. *Spinicella* was first placed on the British lists in 1849, when it was discovered by Mr. Stainton, in Torwood, and exhibited at a subsequent meeting of the Entomological Society of London. During the month of September, numbers of *Phutella Dalella*, and seven specimens of the curious insect, *Zelleria fasciaperinella*, were found among heath on the Pentland Hills, the only locality in which it has yet been found, and a number of larvæ of *Acherontia Atropos* (Death's Head Moth,) were found in various parts of the country during the autumn, so that it appeared to have been proportionately abundant in Scotland, as in England last season, which was undoubtedly one of its abundant years; and Mr. Logan wished to direct the attention of all who have the prospect of rearing the perfect insect during the ensuing season, to endeavour to arrive at some more definite conclusion than has yet been attained, respecting the manner of production of the singular noise which so remarkably distinguishes the insect. Mr. Logan was highly complimented by Dr. Lowe, Mr. Murray, W. S., and the other entomologists present, for his able Report, and on the very beautiful manner in which the specimens were preserved.

III. The next paper was a notice of Silurian fossils, from Canada, by WILLIAM RHIND, Esq. The fossils were found chiefly in the basin of the River St. Lawrence, in the vicinity of Montreal and Quebec. From the lower Silurian were exhibited very perfect specimens of *Orthocera ludense* and *pyriforme*, corresponding to similar species found in the British Silurian strata, as figured by Murchison; also, *Bellerophon bilobatus*, several species of *Terebratulæ*, *Favosites*, *Cyathophyllum*, and other radiata. Specimens of the upper Silurian limestones were also shewn, and a portion of the limestone which forms the upper rock of Goat Island, Niagara Falls. These very interesting specimens, illustrative of the geology of the district of Lower Canada, were, Mr. Rhind stated, collected and brought home by a former pupil, who thus contrived to fill up the leisure of a military life, both profitably and agreeably, by following out the studies of early youth. In describing the limestones, Mr. Rhind also took occasion to state a circumstance illustrative of the practical use of a knowledge of geology. In an extensive district in the north-west of Pennsylvania, where the Old Red Sandstone entirely covers the surface, there was experienced by the settlers a great want of limestone, the nearest supply of this article being from Canada, whence there was a long and expensive land-carriage. It occurred to Mr. Rhind, on looking in the geological maps of America, that in all probability the Niagara limestone extended below the Old Red Sandstone into the district in question. He sent a sketch of the probable position of the strata to a friend, as also small specimens of the limestone inclosed in a letter, with directions to make search in the deep ravines of the rivers, where the limestone was likely to be seen cropping out from below the Red Sandstone. On such search being made, abundance of limestone was found, and immediately applied to practical use.

IV. DR. JOHN A. SMITH exhibited a specimen of the common locust, found greedily devouring a cabbage in a cottager's garden at Longformacus, Berwickshire, in October, 1849, and mentioned the occurrence of another at Lauder, the same year. Mr. Hugh Miller stated that locusts had been several times found, at least as far north as Ross and Cromarty. About five-and-twenty years ago, and again only a few years since, there were a few individuals picked up in the fields and gardens of the latter place; and he was told by one of the older inhabitants, now deceased, who had served under Abercromby in 1801, that, late in the last century,—some time about the year 1790,—he succeeded in catching a large grasshopper-like insect on a house-top in the eastern part of the town, the character of which he was not entomologist enough at the time to determine, but whose family and species he afterwards recognised in the neighbourhood of the Nile, in a locust exceedingly common in Egypt.

NOTES OF A BOTANICAL STROLL FROM
PLYMOUTH TO TAMERTON FOLIOTT, RETURNING
THROUGH ST. BUDEAUX.

NO. I.

ON Wednesday, the 9th. of April, the morning being dry and fine, but rather bleak, as an easterly wind blew, I was prompted to take a botanical ramble—the first this season. I found the following plants in blossom, (the Daffodil, hereafter mentioned, was, it should be remarked, only sparingly to be seen, its season having passed; and the orchis and hyacinth were just unfolding their petals.) It must not be inferred that the various plants observed grow only in the localities named. Whilst many of them are restricted to one habitat; others are met with throughout the circuit described, and others again only occasionally:—

At Mutley, that beautiful creeping plant, *Linaria cymbalaria* was adorning old walls and hedges, at the base of which flourished the less conspicuous *Cardamine hirsuta*; the large pods of this small plant are worthy of observation. From the recesses of the hedges also peeped out a flower or two of *Geranium Robertianum*. The *Ranunculus ficaria* too displayed its golden enamelled stars. Humbly on the ground abode *Leontodon Taraxacum*; and ‘everywhere’ *Bellis perennis*.

On Townsend Hill appeared *Veronica hederacea*, with its minute, but delicately-pencilled blue corolla; *Stellaria media*; *Thlaspi bursa-pastoris*, with its fairy money-purse; *Senecio vulgaris*; *Cochlearia Danica*, whitening the hedges; *Veronica polita*—its small but bright blue petals cheerfully beaming; *Cerastium glomeratum*; *Draba verna*—ever a favourite, from its smallness and early appearance.

We are now on the Tavistock road; and between the summit of Townsend Hill and the village of Knackersknowle, I found *Stellaria Holostea* spreading its delicate petals in abundance; *Glechoma hederacea*, hiding in humble nooks, but whose rich purple flowers are worth searching for; *Viola canina* (I cannot forget to call this plant by its old name, notwithstanding the great botanists of the day say we have been all along in error, and that this plant is the *V. sylvatica* of continental authors;) *Potentilla fragariastrum*; *Veronica chamaedris*, one of our commonest, but certainly most handsome hedge flowers; *Adoxa moschatellina*—a lovely little plant, one of the most graceful that our hedges produce, and as plentiful this year as I have ever seen it; *Sisymbrium thalianum*; *Lychnis dioica*; *Viola odorata*—this is indubitably the gem of the season, from the delicious odour which it exhales, perfuming the air for some distance around its dwelling; *Mercurialis perennis*; *Lamium album*, conspicuous among the true nettles with which it is frequently associated; *Primula vulgaris*—these I found excessively numerous, and of very large size; *Fragaria vesca*; *Arenaria trinervia*—an unpretending but elegant little flower; *Pulmonaria officinalis*—interesting from the peculiar maculation of its leaves, which give them

the appearance of being partially decayed—Lungwort being its English name, from its attributed virtue in pulmonary complaints; *Vinca minor*; *Saxifraga umbrosa* (this and the two previously-named plants grow in a spot which is of such a character as to throw doubt on the indigenous origin of its occupants;) *Cratægus Oxyacantha*.

Arrived at Knackersknowle, we cross some fields, in which I saw *Luzula campestris*; and, on the brink of the Plymouth Leat, *Oxalis acetosella*. What can be more simple, chaste, and beautiful, than this last-named plant! On contemplating it, one may well treat with slight the prouder flowers of the garden, and exclaim with the poet—

“Ye wildings of nature, I dote upon you.”

I afterwards saw the Wood Sorrel in great quantity in a thicket farther on.

Again entering the road, I find between these fields and Tamerton, *Stachys arvensis* (rather stunted, it being very early for this plant;) *Plantago lanceolata*; *Veronica serpyllifolia*; *Luzula pilosa*; *Veronica Buxbaumii*. I do not remember being ever more forcibly struck with the beauty of a flower, than I was on the occasion of meeting with this plant: it grew in a hedge, having a southern aspect; and with the sunshine falling full upon it, it presented a most lovely appearance; and to add to the effect, close at hand were furze bushes, (*Ulex Europæus*.) laden with their blossoms of ‘vegetable gold,’ and the White Thorn decked with its snow-white bloom. *Tussilago Farfara*—this is one of our vegetable curiosities, producing flowers before the leaves appear. *Agraphis nutans*; *Nasturtium officinale*.

Returning, I found between Tamerton and St. Budeaux, *Chrysosplenium oppositifolium*—a charming plant, appropriately called the Golden Saxifrage; for, with its clustered flowers, it imparts a lively golden tint to the dark and retired spots in which it is usually found. *Orchis mascula*; *Viola hirta*; *Luzula Forsteri*; *Narcissus Pseudo-narsissus*; *Euphorbia amygdaloides*.

Between St. Budeaux and Weston Mills, I found nothing unseen before. Hereabouts I saw *Geranium lucidum*, which is the last plant on my list of about fifty, noticed during a walk of four or five hours.

The foregoing sketch is written *currente calamo*, and amid the interruptions of business: its faults and deficiencies must, therefore, be excused. If I shall succeed in awakening some, however few, to an appreciation of our too much neglected wild flowers, and in inducing only one to take up the study of botany, which is too generally, and indeed erroneously, regarded as difficult and dry; I shall not have scribbled in vain.

ISAIAH W. N. KEYS.

9, Bilbury St., Plymouth, April 10th., 1851.

YEW FRUIT, (*TAXUS BACEATA*.)

It is surprising that there are so many different opinions as to the poisonous or non-poisonous properties of the fruit of the Common and Irish Yew trees;

Sir J. E. Smith, in his "English Flora," long ago pointed out that these berries might be eaten without danger; yet we find many of our scientific botanists of a different opinion. Now, on this subject, we can only say, that we are particularly fond of them, and have frequently (*and no doubt many others have done the same thing,*) swallowed the stones or seeds, without experiencing the slightest ill effects; and from repeated observations, we can assert that *Blackbirds* and *Thrushes*, and also the *Redbreast*, eat them greedily. As these are points on which some of our would be 'knowing ones' are at variance, I hope they may stumble over these few lines, and record their observations in the pages of "The Naturalist."

J. McINTOSH.

Charminster, Dorset.

We can confirm the above statement of the innocuous properties of the Yew fruit, having in our school-boy days eaten the berries with impunity, and seen many others do the same. The leaves of the Yew, are, we have always understood, poisonous to cattle.—*B. R. M.*

OBSERVATIONS ON THE FLORAL CHANGES OF THE PRESENT DAY.

BY GEORGE LAWSON, ESQ., F. R. P. S., F. B. S. E.

Read before the Geological Society of Edinburgh, April 17th., 1851.

THE intimate relation which Geology bears to the sciences of Zoology and Botany, does not, I presume, require to be urged upon the members of this Society, although on the present occasion I venture to refer to that connection, by way of apology, for occupying the attention of a body engaged in a field of research, which I, as yet, only feel a desire to enter.

It is the peculiar province of Geology to investigate the past history of our globe, and the changes which have influenced its animal and vegetable inhabitants; but the geologist finds it useful for the elucidation of the earth's former history, to refer to changes at present going on around us, and thus intimately connects the past with the present, and exhibits a harmony of action in the operations of nature, which leads to correct views in the explanation of otherwise unaccountable facts and phenomena. It will, therefore, I think, not be altogether out of place to draw your attention shortly to a subject, which, although I can only venture to bring it before you in its *botanical* bearings, has some geological relations, which I trust may be brought into notice by some of our members. Geology and Botany have mutually benefited each other, and I would fain hope that the former would help the Floral science out of this difficulty.

The geologist is well aware of the numerous important and remote changes which have taken place in the Flora of the globe; and although the observations I have to make, relate to the British Flora alone, I need not refer particularly to the remarkable changes which that Flora has suffered from

time to time, previous to the period of our island being inhabited, and becoming subject to the modifying influences of civilization; as these changes are sufficiently familiar to the geologist, and have likewise been traced by those botanists, who have given the subject their attention in the peculiar character which the present existing vegetation presents. Nor need I refer to the various ingenious theories which have been advanced, in connection with this department of the subject, to account for the manner in which the population of our island with its present Flora has been effected, as my remarks have reference solely to changes of a different character.

In the early condition of our island, when the wild flowers and plants enjoyed the shade and shelter of widely-spreading forests, and before the soil was marked by spade or plough, or otherwise interfered with by civilized man, the Flora of Britain must have been very different from what it is in the present time of universal cultivation. It may be considered to have then been in its most pure and natural condition, unaffected and unchanged by the commerce and operations of mankind. When cultivation began, however, and was gradually extended, and the nature of the soil changed, then, in like proportion, would the character of the Flora change. Many of the aboriginal inhabitants of our primeval forests would decrease in numbers, and some of the rarer species that were confined to a small area, might be exterminated altogether. In place of these, other plants to which the changed conditions of the soil and climate were suitable, would spring up from the seeds carried there by mankind and other causes; and thus would arise an important change in our country's Flora, a change, moreover, which we are inclined to believe bears more of the character of a *natural* one, than botanists generally feel called upon to allow. Many of the weeds of cultivated ground, and other Agrarian plants, are universally acknowledged in botanical books as true natives; yet there are few, if there indeed be any, of them, but have had their origin as British plants in the manner we have indicated. In its primeval condition, the "land of brown heath and shaggy wood" must have been ill fitted indeed for the growth of such plants as the bright blue *Centaurea cyanus* and the golden *Sinapis*, which are now universal ornaments of our corn fields; notwithstanding which, even at the present time, when their seeds are everywhere distributed, these plants are never seen except on cultivated land.

However, on taking up any one of the numerous Floras of Great Britain and Ireland, which have been written, or the "*Cybele Britannica*" of Mr. Watson, (where it is more clearly shewn,) we find in the enumeration of indigenous plants a certain number of 'starred' and 'daggered' species, whose admission into the lists is only tolerated by way of favour—species which are on all hands condemned as intruders—having no natural right to a place in our lists of native productions, and which are, consequently, not admitted in the botanists' considerations—are in fact deemed unworthy of science. The number of such plants differs according to the enumerations of different botanists; but,

beginning with the earliest records of the British Flora, and tracing its history up to the present time, we find that there has been a gradual and steady increase in the number of such interlopers. At the present time a very considerable portion of our Flora consists of such plants—species which are supposed to have originally belonged to distant countries, but which the commerce and agricultural operations of mankind have been the means of introducing to Britain, and thus extending, in some cases in a very remarkable manner, their geographical range. Some of these plants, such as *Mimulus luteus*, for instance, are clearly known to have been directly introduced to this country by the hand of man, although now perfectly naturalized with us; while a considerable number cannot be so distinctly shewn to owe their introduction to mankind. The *Anacharis Alsinastrum*, a plant which has been discovered of late years in this country, belongs to the latter class; and although the great abundance in which it was found in many widely-separated localities, led botanists at first to accord to it an undisputed place in the British Flora, yet the more we learn of this interesting aquatic, the more probable does it seem to be an exotic importation.

It is sufficiently ungrateful for the generality of the botanists of the present day to discard, in the manner they do, all plants which have recently appeared in our land under such suspicious circumstances, as well as a number of others, which in the earlier days of our science, were implicitly regarded by the unsuspecting recorders of our Flora as indigenous productions. It is difficult to say how far botanists are right in so doing; for my own part, I do not readily accede to this strong disposition to regard many of our most beautiful native flowers as aliens—a disposition by no means evinced in the same degree by the botanists of any other age or country. Bromfield, in speaking on this subject, has some very judicious remarks:—"I do not," he says, "on the perusal of the writers of Continental Floras, (an extensive collection of which, old and new, I am much in the habit of consulting,) find the same disposition to doubt the origin of species, which seems so peculiarly to characterize the botanists of this country, that they must needs have recourse to the hypothetical agency of birds, monachism, garden escapes, and other problematical and unproved operative causes, to account for the dissemination of half the plants of our country, whose flowers are a little more specious in appearance than ordinary, without considering that Nature, in her beneficence, has not left the most hyperborean regions, or the most sterile wastes, unadorned by some rare and lovely floral productions, to gladden the general desolation; while she scatters with a yet more unsparing hand her richest gems over temperate and fertile countries. Cast a glance over the inhospitable and frigid Siberia, or the Altaic chain of mountains, and the vast plains at their feet, where the mean temperature of the interior of the earth's crust is but little above the freezing point the year through, yet what an array of even southern types of vegetation does the short and not very warm summer, of some five months duration at most, unfold to the botanical

traveller, in the various species of *Zygophyllaceæ*, *Rutaceæ*, *Amaryllidaceæ*, *Liliaceæ*, *Tamaricaceæ*, and even of arborescent *Leguminosæ* in *Halodendron*, *Caragana*, etc.—a proof that Nature is not easily repressed in her efforts to decorate this world of ours with all that is fair and lovely, even where climate is most opposed to her benign endeavours! And shall not our happy island of Great Britain possess some floral beauties truly her own, when the same have been so lavishly bestowed on rude Siberia's ice-bound hills and deserts? May not the lime and beech clothe *our* slopes as well as those of France and Germany; *our* woods be carpeted with Periwinkle and 'Violets dim,' festooned with the wild Hop-vine, or made radiant with spring Daffodils, as well as those of our neighbours across the Channel, without having our faith in the rightful possession of these gifts of Flora shaken or put to flight by eternally hearing from the lips of some botanical infidel or other the ungracious exclamation—"Vix ea nostra voco?"

Taking a somewhat different view of the subject from that adopted by Dr. Bromfield, we are free to allow that most of the plants stigmatized by botanists in these days as aliens, are in reality introductions from other lands, which, finding suitable soil and climate, have taken up their abode in our island. *But why regard them as unworthy of the attention of the British botanist?* This is a question which has not, as yet, been answered to our satisfaction; and we are entitled to hold our opinions on the subject until a satisfactory reply is offered.

If Botany is still to continue the investigation of the *recent*, and not entirely of the *Fossil* Flora, then we are not entitled to place limits to the Floras of certain countries and districts, and blind ourselves to the changes which they are undergoing before our very eyes. It has been clearly shewn that the vegetation of Britain has at one time or other, been entirely derived from continental Europe,* introduced, it may be, at a remote period. The British Isles cannot, therefore, as has been remarked, be considered as a centre of vegetation; and seeing that our British Flora is entirely made up of stragglers from other lands, I cannot imagine how a difference of period in the introduction of a species should affect the validity of that introduction; how the mere circumstance of precedence in point of time should give, to certain plants, a right to be considered the indigenous productions of the land, to the exclusion of others which have arrived upon our shores in a somewhat similar manner, as colonists at a later period. The circumstance that our knowledge of the introduction of the former is arrived at by means of theoretical reasoning; of the latter, by the direct evidences of our own senses, ought not to lead us to such a conclusion.

Let us see how far the changes at present going on in our Flora, are analogous to those of earlier date, which are considered by the botanists of the present day, to be the only legitimate changes which we ought to discern.

* One exception occurs in the case of *Eriocaulon septangulare*, which is not known on the European continent; but this is no evidence that it never existed there.

In taking even a cursory survey of the vegetation of the globe, no one can fail to discern many of the grand purposes for which the all-wise Creator has adorned the earth with so rich a profusion of plants, varying in form and habits to suit all the circumstances of soil and climate which occur in the natural course of things. One of these purposes we often see beautifully exemplified in the manner in which an island or tract of country suffering change in circumstances affecting vegetable life, becomes speedily inhabited by races of plants suited to the new conditions. An island rises from the bosom of the waters: how soon does it exchange its clothing of sea-weeds for one of green herbage and flowers! a mountain side loses its dense forest; how soon do the hardy mountain plants occupy the places of those which luxuriated in the nursing shade and shelter of the forest boughs! a barren sandy desert is overflowed by springs; how soon is their fertilizing influence indicated by a rich growth of luxuriant vegetation, exhibiting forms which were wholly absent before!

Without referring to the results of geological research, we can readily trace constant changes of a truly natural character going on in every land, resulting from the modifying influences of soil, climate, physical character, and other circumstances. The animal creation has likewise powerful influences on the vegetation of a country; and we can easily see some of these influences without referring to such notions as those which regard the feathered tribes as guided by instinct, to propagate particular plants which afford them food. In a country like ours, universally cultivated, and bearing every characteristic of a high degree of civilization, the floral changes resulting from the operations of man strike us as infinitely greater than those caused by the lower animals, whose influences, moreover, are in such a case greatly weakened; and hence, undoubtedly, arises the disposition to regard changes brought about by man's presence, as really distinct in character from those arising from *other operative natural causes*. We cannot, however, see upon what principle man's *physical influences* can be held to be at variance with the order of nature—as if, forsooth, he were an intruder upon this earth of ours, holding no title to play his important part in physical changes, which are even participated in, and influenced by, the most minute and simple organisms which the microscope has made known to us.

Sir Charles Lyell, in his "Principles of Geology," offers some excellent observations in point, in reference to the animal kingdom, which apply with equal force to the case of vegetables. He says, "The modifications in the system of which man is the instrument, do not, in all probability, constitute so great a deviation from analogy as we usually imagine; we often, for example, form an exaggerated estimate of the extent of the power displayed by man in extirpating some of the inferior animals, and causing others to multiply; a power which is circumscribed within certain limits, and which, in all likelihood, is by no means exclusively exerted by our species. The growth of human population cannot take place without diminishing the numbers, or

causing the entire destruction of many animals. The larger carnivorous species give way before us, but other quadrupeds of smaller size, and innumerable birds, insects, and plants, which are inimical to our interests, increase in spite of us, some attacking our food, others our raiment and persons, and others interfering with our agricultural and horticultural labours. We force the ox and the horse to labour for our advantage, and we deprive the bee of his store; but, on the other hand, we raise the rich harvest with the sweat of our brow, and behold it devoured by myriads of insects, and we are often as incapable of arresting their depredations, as of staying the shock of an earthquake, or the course of a stream of burning lava. The changes caused by other species, as they gradually diffuse themselves over the globe, are inferior probably, in magnitude, but are yet extremely analogous to those which we occasion. The lion, for example, and the migratory locust, must necessarily, when they first made their way into districts now occupied by them, have committed immense havoc amongst the animals and plants which became their prey. They may have caused many species to diminish, perhaps wholly to disappear; but they must also have enabled some others greatly to augment in number, by removing the natural enemies by which they had been previously kept down. It is probable from these and many other considerations, that as we enlarge our knowledge of the system, we shall become more and more convinced, that the alterations caused by the interference of man, deviate far less from the analogy of those effected by other animals than we usually suppose. We are often misled, when we institute such comparisons, by our knowledge of the wide distinction between the instincts of animals, and the reasoning power of man; and we are apt hastily to infer, that the effects of a rational and an irrational species, considered merely as *physical agents*, will differ almost as much as the faculties by which their actions are directed. A great philosopher has observed, that we can only command nature by obeying her laws, and this principle is true, even in regard to the astonishing changes which are superinduced in the qualities of certain animals and plants, by domestication and garden culture. We can only effect such surprising alterations by assisting the development of certain instincts, or by availing ourselves of that mysterious law of their organization, by which individual peculiarities, are transmissible from one generation to another." The distinctness, however, of the human from all other species, considered merely as an efficient cause in the physical world, is real, for we stand in a relation to contemporary species of animals and plants, widely different from that which irrational animals can ever be supposed to have held to each other. We modify their instincts, relative numbers, and geographical distribution in a manner superior in degree, and, in some respects, very different in kind from that in which any other species can affect the rest."

Mr. Landsborough, in his delightful treatise on sea-weeds, puts forth an apology for naturalized plants; in treating of the two species of *Sargassum*, he says, "they have no just claim to take rank in our British Flora. But

though they come to us like shipwrecked mariners of another country, who could feel in his heart to cast them out? If we lay hold of them, it is not to treat them roughly, as intrusive aliens, but to give them a kindly welcome as interesting strangers. We treat them in the same manner as our ornithologists treat a rare and beautiful straggler, which in some of its long migratory flights, has been driven by stress of weather, to make our isle a temporary resting-place." Although strongly inclined to subscribe to this generous apology on behalf of *Sargassum*, we certainly do not adopt such a view in regard to the land plants more especially under consideration, for while the *Sargassum* is only floated to our shores by accidental circumstances, the land plants have in reality taken up their abode with us, and are permanently naturalized.

It is not in Britain alone, that the influences of the human family in modifying the character of vegetation are observable. History traces the introduction to the Indian Peninsula, and indeed to many of the British colonies, of many plants which cannot be considered true natives, although now abundantly diffused, and ministering to the wants of mankind. The Creator has assigned to *every* species certain powers of diffusion, whereby it is enabled to resist the climatic conditions of the lands which it is destined to adorn with its beauty; and to whose animal inhabitants it affords a suitable food.

We find nothing superfluous in nature, and we cannot well conceive, how to certain plants, more than others, has been given the capability of enduring great extremes of heat and cold, drought and humidity, if we are not to suppose that such plants were originally intended to become diffused throughout the world, to a corresponding extent. The ingenuity of man often carries the fruits and flowers of the tropics to inhospitable regions, and by imitating the natural conditions under which they flourish in their native localities, is enabled to develop them successfully, and to reap the benefits of his industry; but no sooner does his nursing hand leave them, than they disappear. Not so with the plants to which we have called attention. They may, in many cases, have been originally introduced, through the instrumentality of mankind, to a country or district, (and we know many that have been,) but once introduced, and finding the climatic and physical conditions which are favourable for their growth, they have taken firm hold of the soil; and not only do not depend upon man's aid, for their continued existence in their new habitats, but, in numerous instances, bid defiance to his strenuous efforts to extirpate them.

I may, on some future occasion, trouble the Society with a continuation of my remarks on this subject, and shall then exhibit a series of specimens in illustration.

NOTES ON THE LEPIDOPTERA OF THE WEST OF SCOTLAND AND FIFESHIRE.

BY JOHN GRAY, ESQ.

As a field of interesting research, Scotland undoubtedly possesses many enticing features for the naturalist. The diversified nature of the country, with its rocky heights, sequestered glens, and moorland districts, in common with its shores and fertile friths, presents an appearance of no common interest, and offers abundant scope for the labours and investigations of geologist, botanist, and zoologist, alike. Perhaps no part of the country excels the *West* of Scotland, in this respect, which, with the fertile shores and islands of the Frith of Clyde, has been long known to all classes of naturalists, for the richness and beauty of its marine, and other productions; adding, as it has done, many rarities to our lists of native fauna. Its entomological features alone, in common with those of Scotland generally, do not seem to have hitherto engaged much attention on the part of writers on that subject; possessing, though it does, many species which have been generally represented as occurring in more southern districts.

This partiality in recording English localities may be, in part, attributed to the much greater abundance of insect life in the balmier south; this indeed appears to be sufficiently obvious in many instances of rare Scottish species, that occur in considerable plenty throughout many of the English districts. Sometimes, however, the reverse is the case; though, even then, it is not uncommon to find their northern distribution entirely omitted, or, quietly described as 'widely dispersed.'

Another reason seems to be that apparent apathy, perhaps not unmingled with petty jealousy, on the part of Scottish entomologists towards the working out of a general catalogue of northern species, which has called forth upon them such a curiously presumptive statement, from the pen of a recent writer on the subject—an unconcern which they evince in not making their captures more generally known, in a connected form, by recording them in the pages of a journal, the conductor of which seems to consider an 'enterprising Englishman' as the best qualified party for investigating the natural history of Scotland.

It must be borne in mind, too, that this department of natural history, perhaps more than any other, abounds in mere collectors—those whose sole delight appears to consist in the acquisition of beautiful objects, whilst their economy and habits seem to present to them but slight grounds of interest.

With a view, then, to illustrate, in however partial a manner, the entomological features of Scotland, we have been induced to put together the following notes on the Western and Fifeshire Lepidoptera; in the hope that it may tend towards a more accurate knowledge of Scottish productions, and prevent species which have been taken elsewhere long before, from being styled 'new to Scotland,' in the proceedings of local societies, by those members who

have only noticed them in their own districts; and, if possible, to reduce to a more equitable level that undue importance so often attached to English localities, to which we have just alluded.

Our original intention was to have illustrated, in this paper, the geographical distribution of Scottish Lepidoptera, and we had already got together considerable materials for that purpose; but finding that several of the highland and northern counties could hardly be represented at all, we perceived that such an attempt could not fail to prove very unsatisfactory; and as we have since learned that Mr. Logan, of Duddingstone, is at present engaged on a list of the species of some of the eastern counties of Scotland, we have thought it better for the present, without abandoning the hope of embracing some future opportunity of following out our original design, to confine our remarks to the species of the before-mentioned districts, trusting that they may be found useful in forming a more complete catalogue of Northern Lepidoptera, than might otherwise have been obtained.

We have to express our obligations to the kindness of various collectors, for several notices of interesting captures; particularly to our friend, Mr. R. Gray, late of Dunbar, from whom we have received every assistance.

With one or two exceptions, the *Diurna* of this district are all comparatively common and well-known species. Without further noticing the everywhere common species of *Pontia*, we may observe that the pale variety of *P. rapæ*, called by Stephens, *P. metra*, occurs not uncommonly in Lanarkshire, in the beginning of May.

The lovely Orange-tip, *Anthocharis cardamines*, occurs in considerable abundance in glens and woody places, throughout the whole district, during the same month.

Argynnis aglaia and *Euphrosyne* appear to be generally distributed during the summer months, in heathy places near Glasgow, on both sides of the Frith of Clyde, and in Fife. *A. selene* also occurs, but much more sparingly.

Melitea artemis occurs a few miles from Glasgow; it appears to be very local, as we have not heard of its occurrence elsewhere in this district. This species is one of the most interesting, having been noticed, we believe, for the first time in Scotland, in this locality, many years ago.

Melitea cinxia, the Glanville Fritillary: this is another very interesting Scottish Butterfly, apparently rare, as the only locality with which we are acquainted, in which it occurs, is in the vicinity of Falkland, Fifeshire. It is somewhat irregular in its appearance, occurring in some seasons, sparingly, and in others, it is never met with.

Vanessa cardui and *Atalanta* are not uncommon in many places in Ayr, Dumbarton, Argyle, and Fife; the latter sometimes appearing near Lanark, as early as the end of June, or beginning of July.

Hipparchia semele, *Megæra*, *Janira*, *Hyperanthus*, *Davus*, and *Pamphilus*, are common in many localities: *H. blandina* has not been observed in any other spot in this district, out of its well-known locality in the island of Arran,

where it is taken in great profusion in the month of August, near Brodick. *H. Egeria* is of rather local habits, preferring open woody places.

Thecla rubi is plentiful near Greenock, Arran, and other places in the vicinity of the Frith of Clyde, also in Fifeshire; flying low and often settling on the flowers of *Senecio vulgaris*.

Polyommatus albus occurs in many parts of Ayr, Dumbarton, and Fife. *P. Artaxerxes* is also abundant in several parts of Fifeshire.

Thymele alveolus and *Tages* seem to be generally distributed in heathy places.

Of the Sphinges, by far the most abundant is *Smerinthus populi*, occurring very commonly in the larva state, wherever its appropriate food is found.

Acherontia atropos appears to be dispersed very generally over all this district; scarcely a season passing in which we do not hear of its capture; it has recently been taken at Greenock, and in the vicinity of Ayr.

Sphinx ligustri: a single specimen of this insect was taken about five years ago, near Glasgow, but was much spoiled in the capturing, before we had an opportunity of seeing it.

Sphinx convolvuli: this species has been taken in Renfrewshire; but not common.

Deilephila porcellus occurs sparingly on the coast near Ayr; taken generally in the caterpillar state feeding on the *Galium verum*. It is also found rather plentifully in Fife.

Deilephila lineata: a single specimen of this rare insect was taken within a mile of Glasgow, four or five years ago.

Zygæna filipendulæ is not uncommon near Ayr, and in the Isle of Cumbray, Frith of Clyde. *Z. loti* is also found, but much more sparingly.

Sesia apiformis occurs rarely near Glasgow, and, with *Trochilium tipuliforme*, which is common enough in gardens, is the only species of clear-wing that has come under our notice in this district.

All the native species of *Hepialus* are indigenous to the West of Scotland. With the exception, perhaps, of the common *H. humuli*, they appear to be all more or less local in their habits, occurring, as we have frequently observed, in certain isolated spots in the greatest profusion, while hardly a solitary specimen could be seen for miles round. This characteristic feature of the genus we have observed more obviously in the habits of *H. sylvinus*. In the month of September, we have taken this species in a retired dell, a few miles from Lanark, in extreme abundance; the males darting about with great rapidity, and the females vibrating their wings, and crawling up the long stalks of grass, or concealing themselves behind the leaves of low-growing plants; while we have met with it nowhere else in this district. *H. lupulinus* and *Hectus* occur in various spots near Glasgow, and elsewhere; though they can hardly be called common. *H. velleda*, in its distribution, partakes much of the same local character, though its localities are so much more numerous, as to make it, with hardly the exception of *H. humuli*, by far the most abundant species of the genus in Lanarkshire. Some of the varieties of this insect are very

beautiful; occurring in all the intermediate markings, from dark and boldly mottled to those of a nearly uniform red colour, figured by Wood, in his "Index Entomologicus," under the name of *H. carnus*. In many other counties, however, this species does not appear in the same abundance; and in Fife, we are not aware of its occurrence.

Euchelia Jacobææ is common in the neighbourhood of Falkland, in Fife, and other places in the same county, flying, in the day-time, over white-thorn hedges.

Ithosia rubricollis occurs not unfrequently near Inverary, and in Fifeshire.

Nudaria mundana is taken in many places, near marshy spots on the Frith of Clyde.

Euthemonia russula is by no means common, but occurs on heaths in the island of Mull, and near Dunoon, on the Frith of Clyde.

Nemeophila plantaginis is by no means rare in woody places, in the vicinity of heaths, etc., throughout all this district—frequently seen on the wing during the day.

Phragmatobia fuliginosa is also generally distributed throughout the West of Scotland and Fifeshire.

Demas coryli is common near Falkland, in Fife; it also occurs in the neighbourhood of Glasgow.

Eriogaster lanestris occurs in various places on the Frith of Clyde.

Pæcilocampa populi occurs near Ayr, but is rather scarce.

Lasiocampa rubi and *quercus* are both very abundant in the larva state on heaths throughout the whole district.

Odonestis potatoaria occurs near Ayr, and at Dunoon, but apparently not plentiful.

The following species of *Notodonta* are generally distributed throughout Lanark and Renfrew:—*N. zic-zac*, *Dromedarius*, *Dictæa*, and *Camelina*. Of these four, the last is the only one which may be termed common, being equally so in Fife. It flies low, and with great rapidity, much like the flight of *Hepialus velleda*; indeed we have often taken it in company with that species in the neighbourhood of Glasgow.

Saturnia pavonia minor is very abundant in the larva state, on all heaths of any extent in this district; it is likewise frequently met with on the wing during the heat of the day, flying very rapidly, and not easily caught; sometimes, however, approaching the ground, fluttering and whirring along with a curious gyrating motion. A remarkable variety of this beautiful moth is in our possession, reared last season from the caterpillar, in which the characteristic features of the two sexes are so commingled, as to make it a matter of some difficulty whether to pronounce it male or female. The form, size, and markings of the wings are those of a male, the colour is partly that of both sexes, the body and abdomen are small, and the antennæ simple.

Cerura vinula is common at Carmichael, and elsewhere throughout the district. *C. furcula* is also met with in Lanark, Renfrew, and Fife, but much more sparingly.

Pygæra bucephala is not unfrequent in many places, the caterpillar sometimes appearing in incredible profusion.

37, Monteith Row, Glasgow, April 2nd., 1851.

(To be Continued.)

LIST OF THE SUMMER BIRDS OF PASSAGE,
ARRANGED IN THE ORDER THEY USUALLY APPEAR IN
THE LOCALITY OF PLYMOUTH, DEVON.

BY R. A. JULIAN, ESQ., JUN.

Chiff Chaff, (*Sylvia hippolais*,) *Selby*.—Very common. Arrived in the year 1848, on March 23rd.; and in 1849, on March 18th. On their first arrival they much frequent sallow bushes.

Sand Martin, (*Hirundo riparia*,) *Linn*.—Common. Arrived in 1849, on March 24th. They breed in small parties, in the banks of the River Erme, below Ermington; on the Meavy, near Roborough down; and Borough island, at the mouth of the Yealm.

Wheatear, (*Saxicola cinerascens*,) *Linn*.—Common. Arrived in 1849, on March 24th. These birds are plentiful on Dartmoor, Shaughmoor, at Pyles on Harfordmoor, and on the sea coast.

Chimney Swallow, (*Hirundo rustica*,) *Linn*.—Very common. Arrived in 1849, on April 8th.; on the following days the weather becoming very rough, I did not observe any again until April 18th.

Willow Wren, (*Sylvia trochilus*,) *Selby*.—Very common. Arrived in 1848, on April 5th.; and in 1849, on April 9th.

Blackcap, (*Curruca atricapilla*,) *Linn*.—Arrived in 1849, on April 9th. Out of the throat of one I once took two large ivyberries, which it had just swallowed.

Ring Ouzel, (*Turdus torquatus*,) *Linn*.—Not uncommon on Dartmoor, Trowlworthy rabbit-warren, Shaughmoor, and Pyles, on Harfordmoor. Arrived in 1849, on April 9th, and on the following day I procured five specimens. They sing much on their arrival, somewhat similar to a Missel Thrush, and their alarm note differs from that of the Blackbird, by being more sharp and shrill. The nest is usually placed in a bank near a stream, or on a ledge of rock in a tor; it is composed of pieces of dead fern or heath, and then a layer of mud, completed with a lining of fine dry grass. The eggs are usually four, but never more than five in number. On their departure, they are occasionally seen in the cultivated and wooded lands of Mount Edgecumbe and Manadon—places contrary to their usual habitats.

Redstart, (*Phœnicura ruticilla*,) *Linn*.—Uncommon. I saw a pair in Bickleigh vale, April 15th., 1849. There are one or two pairs which breed annually

at Mount Edgecombe; I saw young there until the 20th. of September, in 1849.

Yellow Wagtail, (*Motacilla flava*,) *Linn.*—Common. Arrived in 1849, on April 17th., and remained until the 9th. of October. They much frequent the Lines, Devonport, and the marshes at Lara.

Grasshopper Warbler, (*Salicaria locustella*.)—Very rare. Four specimens have been obtained in the months of April and May, near Stoke. I heard and saw one in Fancy wood, April 19th., 1849.

Sedge Warbler, (*Salicaria phragmitis*.)—Common in Efford marsh, Buckland meadows, and the banks of the River Erme, below Ermington. Appeared on April 24th., 1849.

Tree Pipit, (*Anthus arboreus*,) *Jardine*.—Common. Arrived in 1849, on April 25th., and I saw it as late as September 27th., in 1850.

Wood Warbler, (*Sylvia Sibilatrix*.)—Arrived in the year 1849, on April 28th. Common in Bickleigh vale, and all large woods with tall trees; is very rarely seen in brushwood.

Martin, (*Hirundo urbica*,) *Linn.*—Very common. Arrived in 1849, on April 29th., and departed about the middle of October. In May, 1848, I saw a quantity building their nests against the sides of the cliffs at the mouth of the Yealm River.

Whitethroat, (*Curruca cinerea*.)—Very common. Arrived in 1849, on April 30th.

Lesser Whitethroat, (*Curruca sylvia*.)—Very rare. One of these birds was shot at Mutley several years ago, the only one I can discover that has ever been obtained here.

Land Rail, (*Crex pratensis*.)—Common. Arrives in the end of April, and departs about the middle of October; in the latter month they were once found congregated by a farmer, residing near Modbury, in one of his potato fields, not far from the sea coast, who informs me he saw upwards of forty, and killed seventeen; on going to try for them again on the following day, they had all disappeared.

Spotted Rail, (*Crex porzana*.)—Very rare. Is occasionally seen in the months of September and October, in Efford marsh, where one specimen was obtained. The Rev. C. Bulteel also has a specimen in his collection which he shot near Ermington.

Cuckoo, (*Cuculus canorus*,) *Linn.*—Common. Arrived in 1849, on April 28th. It much frequents the cliffs at Bovisand. In the latter end of May, 1848, I took an egg out of a nest of the Yellow Bunting. (*Emberiza citrinella*, *Linn.*)

Whinchat, (*Saxicola rubetra*.)—Uncommon. I am informed it was formerly very numerous. One or two pairs annually breed near Cadworthy Bridge, on Shaughmoor, and on Harfordmoor.

Grey headed Wagtail, (*Motacilla neglecta*,) *Gould*.—Very rare. A pair was obtained on the Lara marshes, May 1st., 1850, by J. Gatecombe, Esq., Plymouth. He informs me their note was sharper than that of the Yellow Wagtail, and

that they more frequented the cuttings made for draining off the water.

Swift, (*Hirundo apus*,) *Linn.*—Common. Arrived in 1849, on May 4th., and I saw it as late as August 13th., 1847, August 16th., 1848, and August 18th., 1849.

Passerine, or Garden Warbler, (*Curruca hortensis*,) *Bechst.*—Not uncommon. Arrived at Bickleigh vale in 1849, on May 7th. When all is quiet, these birds will frequently sit singing in a conspicuous situation, but on the least disturbance, drop down like stones into the undergrowth, and there continue their warbling in security. Early on May mornings I have frequently seen them hopping about on the grass adjoining the Dartmoor railway. Their song is clearer than that of the Whitethroat, and more mellow than that of the Blackcap. I have occasionally shot them whilst feeding on cherries.

Spotted Flycatcher, (*Muscicapa grisola*,) *Linn.*—Very common. Arrived in 1849, on May 9th.

Pied Flycatcher, (*Muscicapa atricapilla*,) *Linn.*—Very rare. A male bird was obtained at Mount Edgecumbe, several years ago, in the end of April, and is now preserved in Mr. Bolitho's collection, Taxidermist, Plymouth.

Nightjar, (*Caprimulgus Europæus*,) *Linn.*—Common. Arrived in 1849, on May 8th. It much frequents the outskirts of Dartmoor, and is occasionally seen in the months of August and September, in thick turnip or potato fields.

Red-backed Shrike, (*Lanius collurio*,) *Linn.*—Not uncommon. Is found at Mount Gold and Five-fields, near Plymouth, and also at Mount Edgecumbe. Arrives in the beginning of May, and departs in September.

Hobby Hawk, (*Falco subbuteo*,) *Linn.*—Rare. I obtained a fine specimen in Bickleigh vale, in May, 1846; I have seen young birds here until the beginning of October.

Common Sandpiper, (*Tringa hypoleucos*,) *Tenn.*—Common. Frequents all the streams on Dartmoor; in August it repairs with its young to the sea coasts, and takes its departure in the beginning of October.

Turtle Dove, (*Columba turtur*,) *Linn.*—Rare. Is most frequently seen in the months of May and September; and from a very young bird obtained at Gnaton, August, 1850, I think they occasionally breed here.

I have never observed either the Nightingale or Reed Warbler in Devonshire, although I have seen them both tolerably numerous in nearly all our Midland counties.

Lara House, Plymouth, April, 1851.

NATURALIZATION OF FOREIGN BIRDS IN THIS COUNTRY.

TO THE EDITOR OF THE NATURALIST.

I know not how far it falls in with the design of your very interesting Publication, to receive the suggestions of correspondents; but I am induced, if not inconvenient, to solicit a brief space, with a view of calling the attention of some of your readers to a subject of another kind. Every lover of Nature must regret, if not the total destruction, yet the increasing rarity of many species of birds, formerly plentiful in this country. It is true we have occasionally introduced a new variety, but it has been chiefly with a view to our game preserves. Our gardens and woods are annually enriched by the exotics of all climes. Is there nothing to be done of the same kind, as regards the *songsters* of other countries, some of which, doubtless, would readily become naturalized with us?

I will confine myself, at present, to naming the *Loxia cardinalis*, commonly termed amongst English bird-fanciers, the Virginian Nightingale, or Cardinal Grosbeak. Many of your readers need hardly be informed that this beautiful scarlet bird is about the size of our Blackbird, possessing an excellent song; and I doubt not is, or would become, quite hardy enough to bear our winters. Indeed, as we are told by Miss Cooper, it is often seen in the cold latitudes of the smaller lakes, in the north-western parts of the State of New York. In my own (cold) conservatory, a male specimen has been in uniform good health for the last three years, remaining in song about eight months annually; feeding on almost any kind of seeds, corn, (chiefly oats,) fruit, insects, snails, etc. It is only recently that I succeeded in procuring a female, of a browner shade than the male bird, but equally graceful in form and action; moreover, what I was not prepared to expect, quite equal in point of song to her mate; perhaps in some respects even a little superior.

Not to occupy your columns, why might not these elegant and shewy songsters be bred in our larger parks and preserved grounds? We want the variety of a scarlet bird to enliven our woods. I lately took the opinion, on this point, of one of our principal importers of foreign birds, (Mr. W. J. Marrott, 54, King William Street, near London Bridge, London;) who coincides with me in thinking that these beautiful creatures would readily adapt themselves to our climate, if turned out to breed at the present season of the year, in localities free from molestation. I am not myself fortunate in this respect, or I would gladly embrace the facilities afforded by Mr. Marrott, for the importation of twenty or thirty pairs, as an experiment. I should rejoice to know that my idea had been adopted by others more favourably located.

HENRY TAYLOR.

April 22nd., 1851.

Spring Arrivals.

I readily respond to the request in the "Notices to Correspondents" in "The Naturalist" for this month, to be informed of the arrival of the Spring migratory birds; a subject, to the lovers of Nature, of great and recurring interest.

The Swallow, (*Hirundo rustica*), has been noticed this year to be a shade later than usual. In the majority of ten years, it has been observed at this place within a day, sooner or later, of the 11th. This year the first visible was on the 14th., when, at nine, a.m., three were skimming over my pond. A friend, resident at Brixham, on the coast of Torbay, to whom I had written, informs me that a well-known ornithologist, residing there, and his two sons remarked one on the 10th. which appeared to 'come over the sea.' On Friday last, the 11th., Arthur Wakeham, of South Brent, one of the most elevated parishes in the southern district of this county, saw a Swallow there, and on the following day, a Woodcock.

On the 8th., while travelling eastward by train to Exeter, I observed a Bank Martin, (*H. riparia*), near the Newton station. In my journey thence to Exeter, on the banks of the beautiful River Teign—from Teignmouth to the mouth of the Exe, on the very margin of the shore, and thence, on the banks of the Exe, to the city, twenty of the most genial miles in England, not an *Hirundo* presented itself.

The season has been rather favourable than otherwise for the migration, yet none of the friends, to whom I have written, have announced the arrival of the vernal voyagers; but one, who resides at Exeter, informs me by this morning's post, that "There are no Swallows yet." From this we may reasonably infer that their arrival is not, like their departure, in flights, or that they spread by simultaneous dispersion.

The Chiff Chaff, (*Sylvia hippolais*), is commonly heard here between the 25th. and 29th. of March. Within the last ten years I have recognised his first well-known notes twice on the 27th. of March, and once on the 29th., precisely at the same spots in a wood adjoining my house. Though tolerably vigilant when there this year, the welcome announcement escaped me till the 4th. instant, when within ten minutes I heard it in two distant parts.
—J. C., Black Hall, Devon, April 15th., 1851.

TABLE OF THE ARRIVAL, ETC. OF THE HIRUNDINES AND OTHER BIRDS;
KEPT AT MINEHEAD, SOMERSET, BY CAPTAIN GIFFORD.

	ARRIVAL.			DEPARTURE.	
	1849.	1850.	1851.	1849.	1850.
Swallow, (<i>Hirundo rustica</i>),	Apr.14.	Apr. 16.	Apr. 13.	Oct. 23.	Aug. 6.
Martin, (<i>Hirundo urbica</i>),	Apr.26.	May6&7.	Apr.22.	Do.	Nov. 25.
Swift, (<i>Cypselus apus</i>),	May 3.	May 1.	May 7.		
Cuckoo, (<i>Cuculus canorus</i>),	Apr. 29.	Apr. 25.	Apr. 20.		
Nightingale, (<i>Philomela luscini</i> a),	May 2.	Apr. 22.	Apr. 20.		

Remarks.—The 6th. and 7th. of May, 1850, were two very wet and cold days, wind east and by north: the Martins took refuge under the sheltered ends of houses. Six were found dead the next day; and in the neighbourhood of Bristol, great numbers perished from the severity of the weather. As late as November 25th., 1850, I saw three Martins flying over a field in front of my house, catching flies in the usual manner.

May 14th., 1851.

Early Incubation of the Cuckoo.—A lad, living in the hamlet of Lakenham, obtained from the nest of a Hedge Accentor, the egg of a Cuckoo, on Saturday, April 5th.—*S. O. Harper, Norwich, April 12th., 1851.*

Early arrival of the Hirundinidæ.—April 5th., a solitary Martin, (*H. urbica*.) was seen by a friend of mine, a naturalist, skimming the river at Heigham, near this city. According to my journal, this family arrived, (except the Swift,) in 1848, April 13th.; 1849, April 19th.; 1850, April 18th.—*Idem.*

Cuckoo on April 11th., in Devon.—I was walking on Friday last, (11th. inst.,) on the road leading to the old Barracks, about half-a-mile from the town, and my attention was arrested by hearing a fluttering in a tree overhanging the road. On getting nearer, a bird flew out, which I recognised at once as a Cuckoo, (*Cuculus canorus*.) But, to make sure, I followed, and with the aid of a pocket glass, saw it very distinctly several times. I was pleased, after waiting some time, to hear it utter its usual weak cry at this early season; which was scarcely more than 'kook, kook,' as I felt more convinced on the matter. I hear that another was seen on Saturday, about two miles from the place that I mention. The neighbourhood is very sheltered, and much wooded, and about five miles from the sea. The wind for the last week has been east and north-east. Yesterday, I saw a male Black-cap, (*Curruca atricapilla*.) near Dartington, Devon.—*S. Hannaford, Jun., Totnes, Devon, April 14th., 1851.*

Arrival of Swallows in Wiltshire.—I have much pleasure in acquainting you with the first arrival, in this neighbourhood, this season, of those interesting little harbingers of spring, the Swallows, (*Hirundo rustica*.) On the 13th. instant I was walking near a wood which crowns one of the hills, about half-a-mile from this town, about six o'clock in the evening, when one of them passed over me. Having requested several persons about here to let me know when they had seen the first Swallow, I find, on inquiry, this has been the first in this neighbourhood: the same day a friend of mine, living three miles from me, also saw one. On the 14th., I saw three more, which fully confirmed the above fact. These, I believe to be the first instances of their being seen about here. This town is pleasantly situated in a hollow, about three miles on the Marlborough side of the Wiltshire Downs: the country is hilly, and in some parts well wooded. The soil, chalk; the Kennet and Avon Canal skirts this

town; and it is the highest point between London and Bristol. The prevailing wind, for the last fortnight, has been north-east; cold, with occasional gleams of sunshine. The Cuckoo has not yet made its appearance.—*S. W. Lukis, Great Bedwin, near Marlborough, April 15th., 1851.*

Dates of arrival of the Swallow, (Hirundo rustica,) at Falmouth.—These birds appear to manage time exceedingly well, when about to visit this locality; that is, as far as their visits are known to me. I speak from personal investigation, and not from 'hear say.' They arrived on April 15th., 1845; on April 4th., 1846; on April 15th., 1847; on April 21st., 1848; on April 16th., 1849; and on April 10th., 1850. At eleven o'clock, a.m., a flock consisting of twenty birds, crossed the bay to the pool; they appeared exhausted, a stiff breeze from the south-east at the time. They have not yet made their appearance this year.—*W. P. Cocks, Falmouth, April 3rd., 1851.*

The *Hirundo urbica* arrived (two,) on Monday the 21st. of this month, at Swanpool; wind south-west, with showers. On the 23rd., a large flock was floating over the pool,—*Idem, April 23rd., 1851.*

The Wryneck, (*Yunx torquilla*), was heard on the 31st. of March, at Oakley Beds, which locality is interspersed with woods and young plantations: wind in the west.—*G. B. Clarke, Woburn, Beds., April 10th., 1851.*

The Little Willow Wren, or Chiff Chaff, (Sylvia hippolais).—On April 3rd., in Woburn Park, Beds., the wind at the time in the south-west: this locality is, I think, too well known to need description. Suffice it to say, it is a mass of evergreen throughout the winter, and in the summer, very few places can vie with it, as the walks and drives about it are delightful. It is a most beautiful sight in the months of May and June, to see the Rhododendrons and other flowering shrubs in full bloom, there being such immense quantities of them among the evergreens.—*Idem.*

A Swallow seen on April 15th.—A Swallow, (*Hirundo rustica*), was seen by me this morning, sporting over the surface of a piece of water, in Woburn Park, called "Big Brackelow:" wind east. On the 17th. and 18th. they were plentiful in this neighbourhood, the wind having shifted into the south on the 16th., and the south-west on the 17th., where it remains now. On the 18th., the Nightingale and Cuckoo were both heard here.—*Idem, April 19th., 1851.*

Arrival of the Swallow at Totnes.—The Swallow, (*Hirundo rustica*), made its first appearance in this part yesterday, the 16th. I was fishing on the Dart, about 11 o'clock, and saw one fly over my head, and a few minutes after saw two more. Wind south-east by east; weather showery and mild; indeed the 16th. was the first mild day we have had here for a fortnight. The Sand Martin, (*H. riparia*), arrived here on the 14th. inst.; and the Redstart, (*Phœnicura ruticilla*), on the 17th.—*S. Hannaford, Jun., Totnes, Devon, April, 18th., 1851.*

Arrival of Swallows in Lancashire.—The following are the dates of their arrival here this year:—April 15th. Swallow, (*Hirundo rustica*,) and Sand Martin, (*H. riparia*,) I observed only a pair of Swallows, and a single Sand Martin; I first saw them about two, p.m., flying over the Leeds and Liverpool canal: wind north-west; situation exposed to the north. On the 21st. the House Martin, (*H. urbica*,) made its appearance on the eastern side of the valley: wind still north-west.—*Wm. Naylor, Enfield House, Accrington, Lancashire, April 21st., 1851.*

As our delightful companion, Gilbert White, remarks, (letter 23,) "If ever I saw anything like actual migration, it was" last Monday, April 14th., while travelling, in the afternoon, on the railway from Boulogne to Paris. I had not previously observed any *Hirundines* in England; the weather being there cold and wintry; but coming on to the continent, was like stepping suddenly from March into June. The afternoon was delightful, and my observation was as follows:—Every five or ten minutes we met a party of thirty or forty, or more, Martins, (*Hirundines urbicæ*,) flying in a north-westerly direction, namely, towards the Straits of Dover; in search, I suppose, of the narrowest passage across to England; for, I believe, it is allowed that the Swallow tribe are very sparing of their pains in crossing the sea. It was remarkable how steadily the most of these parties kept on their course, as though they had an object in view, and the few exceptions to this rule happened at villages, when some were engaged in hawking for insects, and enjoying the beauty of the declining day. I may remark, in confirmation of my view, that, although I watched them carefully, I did not detect a single one flying in a contrary direction. I am aware that this would be early for Martins in England; but, perhaps they would not immediately cross the channel, but wait a few days, until a more genial climate invited them.—*Cuthbert Collingwood, Paris, April 20th., 1851.*

Miscellaneous Notices.

Earliness of the present Spring.—As some proof, if any is wanting, of the earliness of the season, I found in this neighbourhood, *Potentilla fragariastrum* in flower on February 24th. On the same day, *Ficaria verna*; a week later, *Veronica hederifolia*; also *Alyssum maritimum*. On the first of March, Frogs made their first appearance, and spawn was plentiful in the ditches by the 4th. The Sand Lizard, (*Lacerta agilis*,) I first saw on the 16th., much earlier than usual in this place. I have seen a paragraph in the papers, calling attention to the fact, that this year the Common Primrose, (*Primula vulgaris*,) was very backward, while on the contrary, the same flower in the gardens was more than usually forward and luxuriant. As far as this neighbourhood is concerned, I believe that the Primrose is not as plentiful as usual, although I do not perceive any difference in the garden variety.—*J. A. Robinson, Southport, Lancashire, March 17th., 1851.*

Incubation of the Partridge. (See page 48.)—In reference to the notice on the "Incubation of the Partridge," by Mr. Henry Tuckett, in the number of "The Naturalist" for this month, referring to a paragraph in some periodical, alluding to Jeremiah, xvii. 11, "As the Partridge sitteth on eggs and hatcheth them not." I cannot help observing, that I do not think the writer of that paragraph understood the passage he quoted. The Prophet, I conceive, in his beautiful simile refers to the case of a Partridge whose eggs are added, and can produce nothing, and whose endeavours to hatch them are therefore vain, and not, as to a well-known fact, that those birds sit on their eggs without hatching them. By adopting this common sense, and (to me,) obvious meaning of this passage, we avoid the dilemma from which the writer sees no other way of escaping, than by availing himself of the very dubious assertion of the Highland shepherd's "that the Partridge does not complete the hatching, but vacates the nest several hours previously;" for, even supposing this to be the case, it is difficult to understand how it can be said that "the Partridge sitteth on eggs and hatcheth them not" merely because she is not present at the precise time when the young birds leave the shell.—*E. K. Bridger, Prince's Place, Kennington Road, April 1st. 1851.*

Waxen Chatterer, (Bombycilla garrula,) near Edinburgh.—A beautiful male specimen of this bird was shot on the 30th. ult., by Charles Cobbold, Esq., at his residence, Broughton Park, Edinburgh. This is the second or third time I have seen accounts of the capture of this occasional visitant during the past winter. From the rarity of this and other foreign species, we are naturally led to seize any opportunity of adding them to our cabinets, but I think this system of monopoly cannot but be regretted by ornithologists, inasmuch as we thus deprive ourselves, not only of the opportunity of studying the instincts and habits of such birds, but, at the same time, we effectually put a stop to their becoming naturalized in our own country, which would, in many instances, undoubtedly happen. In confirmation of this latter statement, I may add, that the female of the bird now referred to, was perched on a hawthorn bush a few paces from its mate, at the time it was shot.—*Spencer Cobbold, F.B.S., 20, Dublin Street, Edinburgh, April 1st., 1851.*

Waxen Chatterer, (Bombycilla garrula.)—A splendid cock bird of this species was shot on the 12th. of January, 1850, a short distance from the south gates of this town: it is now in the Lynn Museum. A few days previous, one of these birds was shot by a gentleman at Walpole. The Pink-footed Goose, (*Anser brachyrhynchus*,) occurred here frequently last winter, (1849-50.)—*T. S., Lynn, Norfolk, April 9th., 1851.*

Waxen Chatterer, (Bombycilla garrula,) in Aberdeenshire.—Since writing to you last night, I have learned that my father's gardener, Mr. William Wallace, shot, last week, in our garden, Kimmundy, near Peterhead, Aberdeenshire, a very beautiful specimen of the Bohemian Waxwing: he has stuffed

the bird, and now has it. I have not seen it, but should hardly fancy there could be any mistake in naming it; I will, however, make particular inquiries respecting it, and communicate the result to you.—*W. Ferguson, in a letter to the Editor; Glasgow, April 12th., 1851.*

Waxen Chatterer, near Northallerton.—On the 6th. of this month, a flock of eight or ten of these birds, was seen at Bullamoor, about a mile from Northallerton, by a person of the name of Flower; thinking they were curious birds, he borrowed a gun at a farm-house, and obtained one of them. This bird is now in my possession, and is a tolerably fair specimen. Although I have been to the spot where they were seen, two or three times, I have not been able to meet with any traces of them, and so conclude they have left the neighbourhood.—*F. R. Gibbes, in a letter to the Editor; Northallerton, April 15th., 1851.*

The mildness of the late winter would seem to indicate, that other causes than the severity of the weather brought these birds to our shores.—*B. R. M.*

Note on a White-winged Rook, (Corvus frugilegus.)—The Rook has always been considered to be one of the most sociable of all our British Birds, and one which was fond, not only of the society of its own species, but also of that of Jackdaws, Starlings, and Sparrows. In the autumn of last year, however, I witnessed a circumstance, which seems to deprive the Rook generally, or at any rate the Rooks in this neighbourhood, of the credit of possessing such an amiable disposition. I noticed a solitary bird of this species wandering about in the fields in the immediate vicinity of my residence, and seeing it day after day in the same locality, I concluded that it had been disabled by a gunshot wound, or was unable to fly from some other cause. I was, however, mistaken in both these conjectures, for when I approached it, it rose, flew thirty or forty yards, and then alighting again, continued to walk about, silent and solitary. I saw, however, to my surprise, that the feathers of one of its wings were entirely white, and from this I conjectured, rightly, as it turned out, that it had been deserted by its species. A few days after this, a large flock of Rooks alighting in the field in which the solitary bird was, avoided it, and gradually flying off, left the white-winged unfortunate to itself. I have, at times, met with other strangely-marked or coloured birds; but in no case have I seen them neglected and avoided by their own species. Thus, for instance, last year, a pair of Sparrows reared a brood of young ones in some ivy at the back of the house in which I live. Of the four young Sparrows, one was entirely white, two others had white wings and tails, and the remaining bird possessed the ordinary plumage of its species. All four grew up, and the curiously-marked birds were not molested or deserted by their comrades; nor have they left their native locality, as I have seen them all lately, and the white one only yesterday, (March 2nd.) in company with other Sparrows. The only way in which I can account for the desertion of the Rook, which I have mentioned, seems to be this:—

We must remember that an entirely, or partially, white Rook, is a rare bird, much rarer than a white Sparrow; we may suppose that birds of the latter species are accustomed to varieties in the plumage of their brethren, and that they do not consider those Sparrows, which are strangely marked or coloured, as intruders or strangers; and, on the other hand, we may conjecture, that Rooks look upon *white* birds with suspicion, and either desert them, or exclude them from the benefits arising from a residence in the Rookery.—*R. P.*

White or light-coloured varieties of the Rook, though not common, are by no means very rare; several cream-coloured birds have occurred in the neighbourhood of York, within the last few months, and we never heard that they were avoided by their *confrères*; and on several occasions we have seen white-winged Rooks feeding quietly among their sable brethren. We fancy, that in this case, the bird must have been in a weak or debilitated condition, and from choice separated himself from the others of his species, perhaps, as feeling himself unequal to the rough usage he might expect to receive in fighting his way in his little world; for in Rookeries, as in other communities, the weakest goes to the wall. This we think a more probable solution of the cause of his solitary state, than that the other Rooks avoided him on account of his differing from them. Albinism too is always indicative of debility.—*B. R. M.*

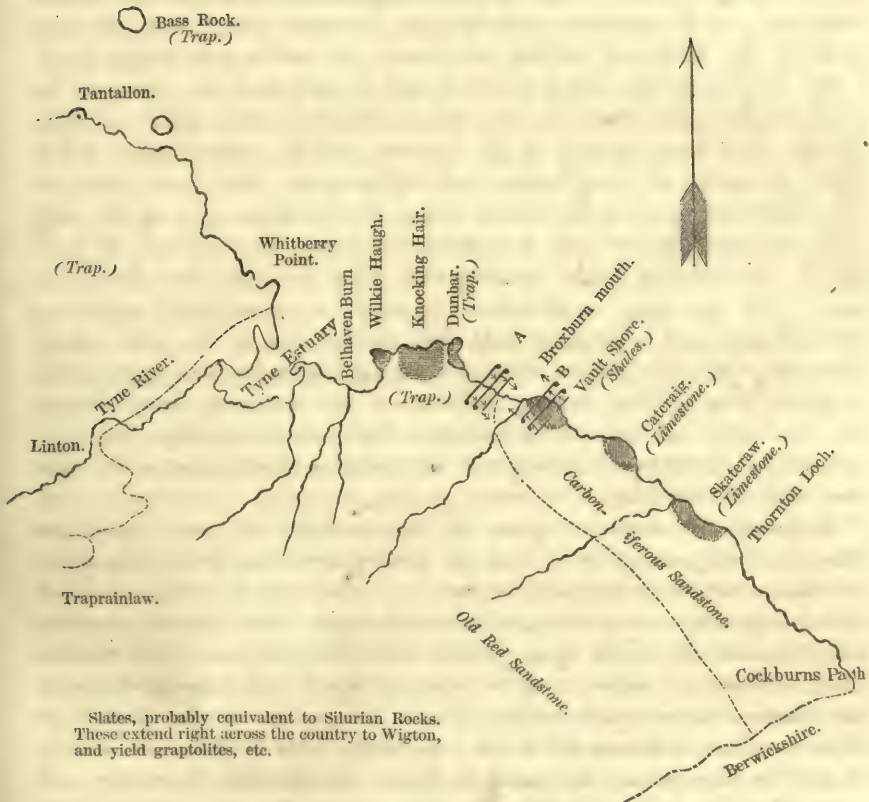
Nesting of the Domestic Pigeon.—I beg to state, in confirmation of a communication from Mr. Hannaford, Jun., to "The Naturalist," respecting the nest of the Domestic Pigeon, that a pair of Pigeons, of a variety called the Silver Shaker, (I believe,) or Fantail, in my possession, built a nest this year of "*small and straight twigs*" in preference to either hay or straw, of both of which there was an abundance at their disposal. I enclose two of the pieces which formed part of the nest; they are of lilac, and from three to eight inches in length. I noticed that there was *no* straw in the nest, but that it was composed entirely of a number of small twigs. My attention was called to it by reading the passage referred to. These Pigeons began to sit as early as the 21st. of January.—*T. S., Lynn, Norfolk, April 16th., 1851.*

The sticks forwarded to us by T. S. are, as he states, quite straight and thin.—*B. R. M.*

Curious situation for a House Sparrow's nest.—A common Sparrow-Hawk's nest was discovered near the top of a very tall silver-fir, in one of our meadows. Our gardener having climbed up to examine it, did not notice anything particular about it, except that it was ready for an egg. When we went some time afterwards to take the young ones, we found, attached to the nest, (built, as it were, into it,) a House Sparrow's nest, with two eggs, and two young birds. Whether the Hawk was keeping them till they increased in size, or whether he had come to terms of peace with them, I do not know.—*Claude A. Lillingston, April, 1851.*

NOTES ON THE GEOLOGY OF DUNBAR SHORE.

BY W. FERGUSON, ESQ.



N. B.—The dotted lines mark the boundaries of the different formations. Lines marked thus ——— indicate division of counties.

I had lately, along with my friend, Mr. Gray, to whose notes on the Zoology of Dunbar shore, the present article is introductory, an opportunity of examining, though somewhat hurriedly, the interesting rocky features of this coast; and I propose to sketch shortly, what then came under our notice, supplemented by information obtained since, much in the order in which our

observations were made in the course of a single day's excursion. This plan will have the advantage of being a useful guide to any one who may be desirous, with limited time, to examine for himself this portion of our coast.

It was a clear cold February morning, on which about seven o'clock, we commenced our perambulations. Passing along by the western side of Dunbar House and Park, we came down upon the shore at a little hollow immediately to the west of the castle. At this particular point, the rocks consist of Red Sandstone, which reach the beach here, in a narrow strip between the trap rocks of the castle, and another development of similar rocks farther west.

By referring to the map herewith, it will be seen that the coast at this point extends considerably out, and that it consists of three masses of Trap; Dunbar castle being situated on the eastmost, and the others bearing respectively the names of Knockinghair and Wilkiehaugh. The point where we approached the shore, is the narrow tongue of Sandstone, west of the castle rock, and from this we held a westward direction. The cliffs are of considerable perpendicular height, reaching from forty to eighty feet above high water. At their base, uncovered at low water, is a considerable platform of flattish rocks, and a pathway leads along by the foot of the cliffs towards Belhaven. Right in front an island at highwater, but at low tide approachable, a conical mass of Trap, bearing the name of the Doo-rock, bursts through the Sandstone, and rises thirty feet above high water; a model in diminutive proportions, of the more imposing rocks of analogous character out in the Frith, the Bass, and the May.

Following the westward course of the pathway, we soon quitted the Sandstone, and entered on a tract of Red-coloured Trap tuff. The outline of these cliffs is very sinuous, and some of the bays are of considerable depth. When within the recess of one of them, the scene, though in the immediate neighbourhood of a town, is not a little wild. The precipitous rock raises its dark red slabs all around; in front, seen out betwixt the perpendicular walls, the German Ocean rolls its waves to meet the waters of the Forth. No sight or sound of human life is near; the hoarse voice of the ocean alone is heard; the lonesomeness and the sound of the sea are peculiarly impressive. All along this shore masses of cliff have been isolated by the abrading power of the waves, and stand out islets of rock at high water, but easily accessible at low tide.

Among the flat rocks which, at low tide, are seen to extend a considerable distance from the base of the cliffs, there are many curious chasms and crevices. These are in reality rents in a submerged cliff, of which the flat platform is the upper surface. At low water the edge of the perpendicular face of this nethercliff is seen, and there is then four fathoms of water in its immediate neighbourhood. One of these chasms bears the graphic cognomen of "The Sucking-in Goat." It is a rent of some length, deep and narrow, opening, in its nether extremity, far out in the ocean. Even in calm weather, there is a perpetual rush of water in this narrow gorge. Beat into the purest foam

in its passage up the jagged aperture, the spray is often thrown high, and far beyond the apparent limit of the tidal force, enveloping the unwary onlooker in a briny shower; and the reflux, equally powerful, will carry back any comparatively light body coming within the reach of its influence: hence the characteristic local name.

"The Tufa," says Mr. Cunningham,* "which occurs in such abundance on this part of the coast, is composed of fragments of various Trap rocks, of Sandstone, Limestone, Ironstone, and Shale, all of which vary in size, from the smallest magnitude to one or two feet; and are embedded in a base of red weackacious clay; which, in some instances, without containing the usual fragments, occurs for a considerable extent, and throughout exhibits a more or less stratified arrangement."

In the course of our walk, the lines of stratification in these tufaceous cliffs attracted particular attention. They assume the most fantastic forms; now beautifully extended in waving folds, and anon angularly broken and twisted up and down. They vary too in the shades of colour, and this adds to the picturesque beauty of their diversified appearance.

The cliffs of Tufa are succeeded by others of Sandstone. These are low, indeed scarcely deserve the name; they are rather ledges: they exhibit numerous layers of different colours, and include Sandstone, Ironstone, and Shale: they have likely been once of greater height, but have suffered denudation. The mass of Trap already referred to, as occurring at Wilkiehaugh, bursts through the Sandstone at the point, immediately beyond which the shore recedes rapidly, with a sandy beach, forming Belhaven Bay. Belton Burn joins the sea here, and beyond it stretch the broad flat sands of Tyne.

Upon the sands to the east of the embouchure of Belton Water, there is a little tower, built over a mineral well. It forms a good record of the changes continually taking place on such an exposed coast: it used to be approached from the higher beach by a gangway, underneath which a pedestrian might easily pass. On the occasion of our visit, the gangway and half the tower were buried in the sand. A little way on, we have a record of a different kind. The constant action of wind and tide has laid open in the sand cliff above the beach, several (I counted six,) stone-built coffins containing human bones: history speaks not of their occupants, and even tradition is silent respecting them. The shifting sand—the most recent of all the geologic rocks, has held them for a thousand years. Who shall write the chronology of the framework beneath, against which the gravelly matrix of these tombs had accumulated, ages before the first of the last ten centuries had begun its course.

We turned up the side of Belton Water, and gained the road from Haddington, by which we returned to the town, along the side of a trough-like valley, sloping away, on the one hand, to the Lammermuir hills, and on the other, ascending by a considerable acclivity, especially in the Trap eminence called Knockinghair, to the verge of the cliffs, whose perpendicular front is the ocean

* "Wernerian Transactions," vii., 95.

barrier. From this hollow, when you come near to the town, the ascent is somewhat abrupt, for the situation of Dunbar is high and commanding. From this point of view, as well as from the shore to the south, it presents a fine appearance.

The forenoon of the same day we devoted to an examination of the rocks at the harbour and castle.

The new harbour of Dunbar is formed by connecting the shore with an outlying basaltic mass, the site of the battery, and further connecting that mass of rock by a pier and sea wall with the Trap rocks, on which are the ruins of the old castle of Dunbar. These rise vertically through the strata of Sandstone, which at the point of contact are highly indurated: portions of it are enclosed in the Trap. Mr. Cunningham says, "That the Trap on which the castle of Dunbar is built, differs in different parts; in some places being composed of Red Basaltic Greenstone, and in others of Tufa; and in one place where the sea has formed an arch, masses of indurated Sandstone of many yards extent, are entangled in the Trap rock." Professor Jamieson says, "They are composed of Red-coloured Trap-tuff, Amygdaloid, and of a basalt which contains Red Diallage and Olivine, which, by the action of the weather, has acquired a red colour. They form one inclined bed of great thickness, which rises above the lower superincumbent and subjacent Red Sandstone." These cliffs, with their capping of ruins, are extremely picturesque: they run out boldly to some distance. "The softer rocks," says the Rev. Mr. Jeffrey, "have yielded to the perpetual motion of the waters, while the more compact remain; forming large caverns, and rugged arches, through which the tide rushes with impetuous fury; presenting a grand spectacle at all times, but awfully sublime during a storm." The entrance to the new harbour has been cut right through these rocks, detracting much from their interest, so far as the picturesque is concerned; but thereby a fine section of the mass has been laid bare. It is rent into chasms in various places, and some of the smaller veins are filled with crystals of quartz and other minerals.

The greatest point of attraction, however, will be found at the battery, where the basalt assumes a beautifully columnar form. This was very finely seen previous to the commencement of the new harbour operations. The islet then presented the appearance exhibited in the annexed illustration.



In forming the new harbour works, many of the finest columns have been cut away. To get an adequate idea of them now, it is necessary to get upon the sea wall of the new pier, and view them on the west side of the island, beyond the wall. From this you look down upon the ends of the columns, and by going a little westward along the wall, if it is low water, a considerable portion of the pillars may be seen in their length. The columns are of various shapes, of three, four, and six sides; these however, are not equal, nor is their form always regularly defined, or their jointings very apparent. In some instances these joints are fifteen feet in length. They seem to be formed of concentric circles, which appear, when they become decomposed from exposure to weather, and they are traversed by a perfect net-work of small veins of jasper and quartz. The rock forms a noble breast-work to the harbour, and it would have been well had the engineers who constructed the new works, had more of the same sort of assistance. The long sea wall betwixt the battery and the castle rock, although of considerable height, is not security enough against the huge waves of the German Ocean, which, in a storm from the north-east, break forty feet above it; the spray falling amid a profusion of rainbow tints into the basin within. Beneath these pillars, it is stated, is a bed of Red-coloured Trap-tuff, resting upon the Sandstone, through which, as we have already mentioned, the castle rocks protrude. The position of these basaltic columns is not quite vertical, sloping from south-east towards north-west. Their colour, when fractured, is a bright red; where, exposed to the continuous action of the sea, they are more yellowish, and wear away roundedly at the apex; presenting, when looked down upon, an appearance somewhat resembling a gigantic honey-comb, at the early part of the season, when the larvæ are yet protruding from the waxen cells.

Dr. Mc'Culloch, in his *Geology*, published in 1831, vol. 1, page 172, has well described these rocks, although, as pointed out by Mr. Cunningham, he falls into the grave error of supposing them to be Sandstone columnarized by heat; he says, "the columns are limited to a small space, but are of considerable dimensions; attaining two feet or more of diameter, and a length of fifteen feet or upwards. Where this columnar structure occurs, the character of the rock is changed in a greater or less degree, becoming more compact, harder, and in some places, passing into a perfect but coarse jasper; in addition to this, it presents the indications of an internal concretionary structure. The transverse sections of each prism are marked by concentric lines, of different colours, whitish or reddish, which conform accurately to the sides and angles towards the exterior, but become gradually curved as they approach the centre; indicating the probable existence of a spheroidal nucleus."

Beyond the shore rocks, there is a remarkable line of rocky islets, commencing directly north from the Battery, at the distance of two hundred and ten yards, and running westward in a curved line, till they approach the shore at the Table rocks, referred to already. There are, at least thirteen of these, varying in height from eight to thirty feet above low water. This chain of

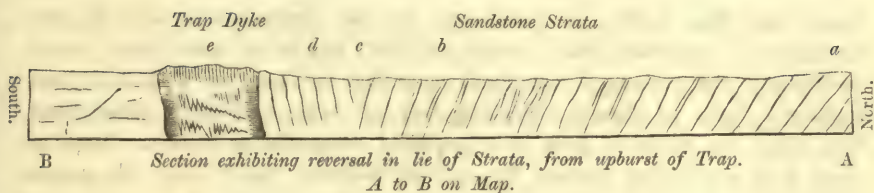
islets presents a striking analogy to those 'circles of volcanic rocks, which are so common among the coral-crowned islands of the Pacific.

Passing eastward from the harbour and town of Dunbar, a series of fine surface sections are obtained on the shore, between high and low water. Immediately beyond the extreme verge of the tide, the ground rises abruptly, and then retires with considerable diversity of hill and hollow towards the interior. The abrupt declivity presents no view of the rocks, being covered with a deep deposit of red clay, but along the shore we have a fine sequence of the strata laid bare.

For a considerable distance the explorer passes over a series of beds belonging to the old Red Sandstone group. Immediately at the back of the harbour, we meet (as described by Professor Jamieson,) "with a red conglomerated Sandstone, extending north-east and south-west, and dipping, like the Trap of the harbour, to the south-east. It is succeeded by a bed of red-coloured Trap-tufa, having the same direction and dip. The next bed is a conglomerated-like Sandstone; it is of a reddish colour, and embedded in it are patches and spots of a white-coloured Sandstone. A greenstone rock, partly porphyritic, partly tufaceous follows. It is much intermixed with the red conglomerated Sandstone, and is traversed by veins, several inches wide, of white quartz Sandstone."

Beyond the cottages is a long level tract of Red Sandstone Rocks, with a south-west and north-east direction, and dipping at about 20° east-south-east. The inclination at first is very slight, and the edges of the strata run out with a regularity which cannot fail to strike the explorer, especially if looked down upon from the road on the high ground above. They look indeed like the ridges of a ploughed field on a gigantic scale. The beds are thin, and for the most part of a deep red colour. It is everywhere marked by circular or oval spots, of a bright green colour, called by Professor Jamieson, mountain green, or celandine. On examination, I found that the colours did not go into the stone; a blow or two with the sharp edge of the hammer being always sufficient to cut them out. In many places green-coloured clayey layers are interstratified with the red sandy rock.

As you pass eastward, the strata become still more inclined, then entirely vertical. They lose their red colour, and assume a greyish tinge, and a highly indurated appearance; their jagged and serrated edges project in confused variety of ruggedness. Immediately their dip is reversed, and they are found lying against a dyke of Greenstone. This is immediately below the west end of Broxmouth Park. The Greenstone dyke runs out a considerable way into the sea, and its dark colour has obtained for it the name of the Black Rocks. In its neighbourhood small veins may be noticed running from it through the Sandstone. The following diagram represents this section. Its position is marked on the Map by the letters A B. The normal inclination of the strata is seen in the diagram, from *a* to *b*. It changes at *c*, the reversed direction being marked from *c* to *d*; the strata



lying against the Trap Dyke *e*.

Several huge boulders of Trap are to be found on the shore. There is one of these a little eastward of Broxmouth burn, considerably upwards of eight feet high: it is visible at a great distance.

Continuing our walk, we suddenly discover that we have quitted the red and grey non-fossiliferous Sandstones of the old Red series, and we now tread over the ruins of an ancient forest. Flat masses of yellowish Sandstone pave the shore, in horizontal slabs, and are full of the remains of *Calamites*, *Sigillariæ*, *Stigmariæ*, *Lepidodendra*, etc. Many of these are mere impressions, and form alone guides to their recognition. Many however, retain the coaly matter into which their cortices have been converted, and attract by the contrast of colour, as well as form. They are there in myriads, and are of every shape and size, from the graceful *Calamite*, to the more sturdy *Sigillaria*. I may here remark, that in 1815, even Professor Jamieson, could thus write of these organic remains:—"In the Sandstone there are numerous *supposed* vegetable moulds, and some varieties of the Sandstone are entirely composed of them. This latter fact would intimate, that these are crystallizations of the Sandstone, and not true casts of organic bodies." So long was the very existence of organic remains questioned, by geologists of the Plutonic school.

Among the layers of Sandstone, we meet with Limestone beds, the burning of which, for agricultural purposes, was long carried on here, and led on more than one occasion, to shipwreck, the fires of the kilns being mistaken for signal lights. A memorable instance of this occurred in the destruction of the *Pallas* and *Nymph* frigates, in 1810.

At one point, near some houses called the Vault, the superincumbent beds of Fossiliferous Sandstone have been removed, and you descend over their edges, eccentrically carved by the waves, into all sorts of grotesque and varied form of pillar and capital, to a lower platform of Calcareous Sandstone, containing worn fragments of encrinurites, and from that again, to a still lower series of beds of Black Shale, full of the stems and plates of encrinurites, and containing also, numerous nodules of Ironstone, with remains of *productus*, *spirifer*, *terebratulæ*, etc. From the Calcareous beds, I obtained specimens of portions of encrinurites, as stated, in a water-worn condition; and the idea has suggested itself, that this bed may have been formed from the debris of a portion of the lower one, broken and washed up by the force of the waves of the sea in which the encrinurites of the Shale beds flourished in such abundance. I

think that this notion is borne out by the circumstance, that in two specimens I examined, the *laminæ* of the Sandstone were bent round underneath the portion of the fossil embedded in them, as if it had been impressed upon an already deposited bed of some coherency, rather than been silted up, where it grew in a gradually accumulating deposit. Some of these beds are farther marked by curious hollows, "as if" says Mr. James Miller, "pitted with small-pox of no ordinary dimensions."

Beyond this point, Limestone occurs to a considerable extent; it is of a bluish grey colour, and full of organic remains. These are well seen at Cateraig, where one portion to the east of the harbour is characterised by shells, and another to the west by corals. These patches of Limestone seem to be repeated all along the coast, at least, so far as the county of Haddington extends.

A glance at the map will show that the Carboniferous rocks in this district, are a patch isolated from the great Coal-field, extending between the Friths of Forth and Clyde. It may be all that remains on this side the great escarpment of the old Red Sandstone of the Lammermuirs, of what was once continuous with the great Coal-field. It occupies a hollow in the old Red system, which extends considerably into the interior, and is in turn flanked by the Slates, which cross in an unbroken line, from St. Abb's Head on the east, to Port Patrick on the west coast, and are regarded as the equivalent of the lower Silurian group of the south. Further on, at Siccar, may be seen the junction of the stratified with the unstratified rocks—the quiet children of ocean, with the more rugged children of fire. But the present sketch does not pass beyond the boundary of East Lothian; and I only add farther, that to any visitor, this shore abounds with attractions of no mean merit. The form of the rocks, urged, as it were, to bold defiance of the waves, by the upheaving and indurating influences of fire, yet battered and broken by the aqueous power, eventually triumphant over its more energetic, but less sustained brother, are worthy of the study of those who love variety combined with wildness. The pools foliated with thickets of purple and green and white corallines, and with zoophytes and algæ, and peopled by the wondrous races of ocean life; may well hold the lover of the beautiful, as well as the student of Marine Zoology, entranced in ardent admiration. While the broad expanse of ocean itself, ever changeful, yet ever unchanged, greets the view and gratifies endlessly the gaze, an object the more looked at, the more admired, whether lashed into the wild magnificence of tempest, or hushed into the gleaming quietude of repose.

"There is society where none intrude,
By the deep sea, and music in its roar."

* * * * *

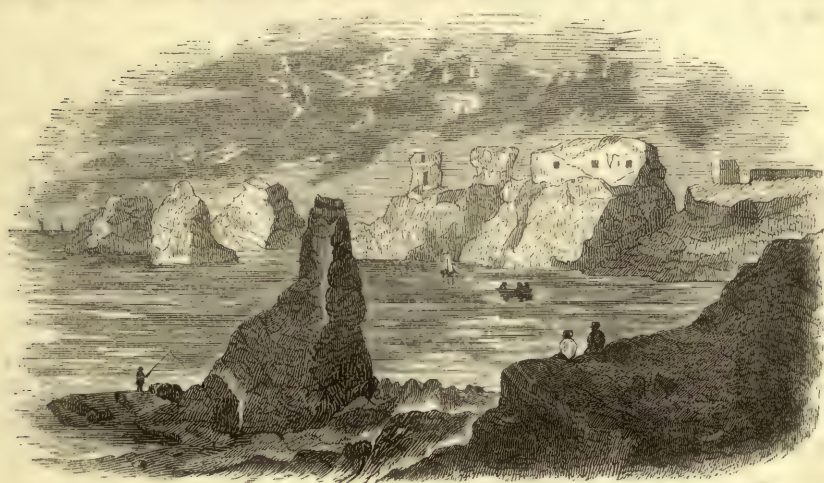
"And I have loved thee, Ocean."

Glasgow, April 28th., 1851.

NOTES FROM THE ROCKS.

ON THE NATURAL HISTORY OF DUNBAR SHORE.

BY ROBERT GRAY, ESQ.



DUNBAR CASTLE AND ROCKS.

"Monographers, come from whence they may, have, I think, fair pretence to challenge some regard and approbation from the lovers of Natural History; for, as no man can alone investigate all the works of Nature, these partial writers may, each in his department, be more accurate in their discoveries, and freer from errors, than more general writers, and so by degrees may pave the way to an universal correct Natural History."—GILBERT WHITE.

"Who can old Ocean's pathless bed explore,
And count her tribes that people every shore."

A number of years have now elapsed since, under the guidance of our much-valued friend, Mr. A. Hepburn, of Whittinghame, we undertook to be Faunist of the sea-shore at Dunbar; and though, for many more previous to that, we had followed the pursuit of Natural History for our own amusement, and had amassed a well-furnished museum of objects, no trouble was ever taken to record the observations made in our rambles. Like too many obscure field observers, we had plodded on under the impression that what we were engaged in was likely to interest no other person; and so far indeed as our judgment had been swayed by the mock sympathy of our neighbours, we were not likely soon to entertain a different notion. One who spends so many hours a day perched on a rock by the sea-side, or wanders out in the evenings of winter to recline on a bed of old Red Sandstone, and watch the feathered tribes as they return from the fields, cannot possibly

expect to meet with kindred associates; nor did we, who indulged in these habits from year to year, ever meet with any who would countenance our pursuits. To some minds of a more sociable disposition, this might have been a serious obstacle to the accomplishment of such a design as we attempted to execute; but we must own, (and that without charging ourselves with being non-gregarious,) that our happiest hours, while studying Nature, have been spent alone. Yet not so,

“To sit on rocks, to muse o’er flood and fell:”

“This is not solitude; ’tis but to hold

Converse with Nature’s charms, and view her stores unrolled.”

And there are many students who would live content with the signs of life around them there;—the lowly *Actinia* in the pools, contrasting in its yet brighter hues with the painted corallines spreading their branches around it; the gliding Gobies, and the almost motionless *Cottus*, basking on the sand streaks here and there visible; and various Blennies peeping from under the broad-leaved *Fuci*, which protect them from their foes. Birds on every side make known their presence; the cries of the Totani and Curlews, the laughing of the Gulls overhead, and the wailing of the Lapwing and the Plover, are their best known sounds; and even should these be wanting, there is the broad-breasted ocean before them;

“And thou majestic main,

A secret world of wonders in thyself.”

Before offering to our readers the Notes on our favourite pursuits, which we had accumulated in several Journals, it was our intention to describe the geological features of the spot which gave them birth; but this we could not have so successfully accomplished as has been already done by our friend, Mr. W. Ferguson, whose monography we cordially recommend for its correctness and excellence. Indeed, to speak the truth, our knowledge of geological science was, in the locality we speak of, almost entirely confined to those points which affected our convenience. We knew of the existence of the flat shelves of fossil-covered Sandstone, with their deep intersecting pools; of the upright ledges of ‘old Red,’ and the porphyritic dyke of Basaltic Greenstone; and of the large boulders deposited on the flats, which are visible at a mile’s distance.

They afforded us excellent shelter when out shooting wild-fowl, and we gratefully acknowledge their services as screens, passing by all speculation about their origin. Often have we crouched under covert of their ‘broad bare backs,’ and arrested the course of the busy *Tringæ*, and the Plovers as they skimmed past, while now and then some unlucky ‘whaup’ would increase our ‘head of game.’ And this, we are sorry to confess, is all we could have said in their favour; for, though we had set foot on almost every stone in the district, we could, previous to our last visit with our friend, have almost been brought to believe that there existed in our old haunts,

"Rocks rich in gems, and mountains big with mines!"

Nor, with regard to fossils, could we more creditably have entertained the palæontologist; our records comprehending nothing more than a bare allusion to the stone book of the parish. In the Carboniferous Sandstone beds, as mentioned by Mr. Ferguson, myriads of vegetable remains are conspicuous; and on the beach, at some distance to the south, broken fragments of a *Sigillaria* are scattered about in profusion, having obviously been washed out of these beds. Corals abound in huge masses, and the disjointed stalks of *Enerinites moniliformis* are strewn thickly in a bed of shale; the heads of the latter are, however, very scarce. But intensely interesting though the study of fossiliferous rocks is, we must not dwell on it, being somewhat out of our province; we therefore leave the geologist to decipher these ancient lithographs in a manner suitable to their claims. We believe there are 'sermons in stones,' though in Nature's volumes some of these are hard to understand, and we shall always look back with pleasure to our short 'meditations among the tombs' of Earth's first tenants, seen in the neighbourhood already described; yet without disparaging these, or the pursuits of any follower of the science, we have greater pleasure in inviting our readers to other parts of the same work;

"Let us read

The living page, whose every character
Delights and gives us wisdom."

It is our purpose then, in laying before the readers of "The Naturalist" these 'Notes from the Rocks,' to give first a few notes on the Ornithology of the district, which may be considered applicable to the coast of East Lothian in general, and afterwards to continue the observations in other departments of Zoology as opportunity may offer. These, it may be observed, are *bonâ fide*, written at the time of observation; the earliest corroborated by the experience of after years; and the whole undertaken with a certain amount of enthusiasm, which those who find pleasure in studying Nature in the fields can best appreciate. No apology is offered for the want of classified sequence: we believe it would serve no great end in so small a matter; and we therefore take up at random one of our re-written sheets which treats of

FULIGULINÆ, OR, SCAUP DUCKS.

A family of birds which are, for the most part, maritime in their habits, and distinguished from the Anatinae, or true Ducks, by their ample feet, fuller and more depressed bodies; besides having a large membranous lobe appended to their hind toe. They are all excellent swimmers and divers, have a strong and rapid flight, and are somewhat wild in their habits. Many of them are merely winter visitants, appearing in the end of autumn, and retiring early in April. In rough weather various species may be seen hurrying along by the water's edge, slackening their speed occasionally, to look for a place of shelter; of these the Oidemiæ are very conspicuous, their

raven-black plumage contrasting in a remarkable degree with the white foaming waves. The shore of Dunbar is frequented by eight or nine members of the family, all of which are familiar to us; we have even identified the different individuals, by the aid of a telescope, when collected in large flocks during the day-time in calm weather, and floating at no great distance from the shore. These congregations are often very numerous, comprising at a moderate estimate, several hundred birds. On being watched for a time, a score of them are seen to disappear at once, and on their emerging above water, down goes another party to hunt for prey. Now and then a few will rise on wing, but soon settle on nearly the same spot 'mid their companions; and as each heaving wave lifts its head, a long train of birds come in sight, and then sink on the other side. A ball from our rifle has often been the means of dispersing such like communities; every Duck hid itself immediately as it hissed in the middle of a flock, or whizzed over their heads; and when they reappeared on the surface, scarcely two were in company; then they would take flight, and, after collecting, would settle out of harm's reach, and begin again their fishing operations. Towards evening they break up into small flocks, and betake themselves, some by flight, and others by swimming, to estuaries and other level parts of the shore, to search for food. We are doubtful, however, if all are night-feeders; during the course of our shooting experience we never met with the Ice Duck, (*Harelda glacialis*), nor the Eider, (*Somateria molissima*), at night, in situations where others were abundant; but, we must add, the loud cry of the former is often heard after dusk, especially in stormy weather.

Most of the species can dive to a great depth in search of their prey, and are consequently not so dependent on shallow water as some others of a different family, which only immerse the head and neck. They may be seen fishing a long way off shore in the day-time, for crabs and mollusca, which they swallow on reaching the surface, and when so employed in small parties, the sportsman may frequently get within shot, as they are slow to get on wing, and will rather attempt to escape by diving.

We remember noticing, one afternoon, a large flock of Ducks swimming quite close to the beach, in a very retired situation; and seeing one or two well-known forms of the Fuliginæ amongst them, we at first imagined they all belonged to that family, but, on using a telescope, we discovered the majority to be grain-feeding species, the Mallard, Teal, Widgeon, etc. The cause of their meeting was soon explained;—a schooner, laden with barley, had been wrecked near the spot a few days previously, and its cargo strewn around, which had furnished a very opportune meal. It is probable the Pochards had been drawn into their society while passing, as birds both at sea and on the beach will often stop short in their flight to join others, though not of the same species.

(To be continued.)

NOTES OF A BOTANICAL
STROLL FROM PLYMOUTH TO BICKLEIGH VALE, GOING
AND RETURNING BY DIFFERENT ROUTES.

NO. II.

On Tuesday, April 15th., according to appointment with an ornithological friend; (a correspondent of yours,) who is desirous to have an insight into Botany, I started with him on a ramble through our renowned Bickleigh Vale. The morning was black and windy, threatening rain: nevertheless, nothing daunted, we pursued the 'even tenour of our way;' and a most delightful day's excursion we had, notwithstanding the *nimbi* did discharge their watery treasures around us. Although at the risk of trespassing upon your space, I cannot resist the temptation to remark how great is the pleasure which the naturalist enjoys during his walk, compared with that of the listless, objectless saunterer, who merely creeps out of his domicile to banish *ennui*, and escape from himself, as it were. At this season, for example, when the sun only sheds its beams aslant upon the earth, and the woods are brown and dull to the eye, what delight could it afford the man who is able to appreciate only the glowing sunshine of the summer months, and the gorgeous drapery which then invests the trees, to stroll forth in their silent arcades, and gaze upon their denuded denizens? None! He is unacquainted with the inherent beauties of Nature, and therefore courts her not, except when arrayed in her carnival attire. Let us, then, who have been 'within the veil,' and know how refining—how elevating—how subjugatory of the passions is intercourse with Nature, strive to win votaries to her shrine, by showing to such as have hitherto kept aloof from her temple, that at all times and all seasons, she has charms for her true and fervent worshippers. But to proceed; and here I would state, that in this series of papers I shall, (except under special circumstances) omit the name of any plant noticed, if previously recorded. For instance, comparatively few plants will be mentioned in these notes, owing to the majority of those seen this day being included in our first paper.

Crossing the Laira embankment, we found, profusely scattered on both sides of us, *Barbarea præcox*. This plant is not common throughout England. Babington particularly points out in his "Manual," "waste places in Devonshire," as the locality of this plant.

On the line of the Dartmoor Railway, *Sarothamnus scoparius* had donned its vesture of 'vegetable gold.' It was early for this shrub to be in blossom. Indeed, if your readers will consult their books, they will find that our plants are generally precocious—a circumstance attributable to the geniality of our climate, and low, sheltered position.

Shortly after entering the Vale, we discovered in abundance *Anemone nemorosa*, dotting the ground with its pure white flowers, and filling one with ecstasy at the thought of so much life and energy prevailing in the midst of seeming decrepitude and death. Of *Ajuga reptans*, one specimen was collected.

Luzula sylvatica, which, during the summer, fringes the banks of the River Plym, (which, for the information of those to whom the place is unknown, it may, perhaps, be stated, flows through this Vale,) was beginning to rear its spreading heads; and in sheltered spots, near the waters' brink, *Veronica montana* was modestly unfolding her pencilled petals of blue and white. Suffer me here to remark that the specific name of this plant is quite a misnomer;—*Montana*! why we find it only in warm valleys. *Anthoxanthum odoratum* (the Sweet Vernal Grass) was in many spots in flower. Here and there a sprig or two of *Calluna vulgaris* was decked with its heath-like bloom; and a solitary example of *Cardamine pratensis* was found in flower in a plot of moist ground. *Vaccinium Myrtillus*, (Wortle-berry—"Urts" they are locally called,) was sparingly in bloom; and a sweet thing it is with its nodding flowers of greenish hue, tinged with a delicate red. Lastly, in the vale flashed boldly on our gaze, from a stagnant pond, the flaunting *Caltha palustris*, (Marsh Marigold.)

Ascending from the Vale through the woods on the western side, we passed a farm named Colwell, in a lane approaching which *Viola hirta* was very plentiful. Passing onward through some narrow and unfrequented lanes, we found *Arum maculatum*, with many other plants recorded in the first paper, but more fully expanded and more numerous. I might dilate on the gratification experienced from the information which I derived from my companion, on the various birds we saw during the day; but I forbear.

On Good-Friday, I found at Maker, Cornwall, *Moenchia erecta* and *Teesdalia nudicaulis*—both in flower, but rather small. I was highly pleased at finding the latter plant so near home; for the only habitat previously known to me was at Shaugh Bridge, some six or seven miles hence. These are good plants; and should they be desiderata with any of your readers, it would afford me pleasure to furnish them with specimens in exchange for any that I may be wanting.

On Monday, 21st., I collected on the Hoe, Plymouth, *Poa bulbosa*, *Smyrniolum olusatrum*, *Erodium moschatum*, (small and prostrate, but with its long and pointed seed-vessels standing erect—a miniature *chevaux de frize*,) and *Plantago coronopus*. I have since seen *Selene maritima* gathered at Bovisand.

April 29th.—Went to Maker Heights, with the view of procuring better specimens of *Moenchia erecta* and *Teesdalia nudicaulis* than I saw on Good-Friday; but, owing to the cold which has prevailed since that day, their stature had not increased. Noticed in flower, *Ornithopus perpusillus*, *Myosotis versicolor*, just unfolding its minute and delicate cream-coloured corollas, (which, as implied by its name, soon assume a different hue,) *M. arvensis*, *Rumex acetosella*, *Geranium molle*, *Sherardia arvensis*—sparingly in bloom, but I mention it now lest it should hereafter be overlooked; *Cardamine sylvatica*, *Cherophyllum temulentum*, *Poa annua*, *Erysimum alliaria*, *Luzula multiflora*.

May 1st.—*Centranthus ruber* coming into flower (many clusters quite open) on a wall at Stoke, near Devonport. In similar situations the Wallflower, the

pet of the poets, has been for some time past shedding its agreeable perfume.

May 3rd.—In bloom, the common Fumitory, (*Fumaria officinalis*,) whose wax-like flowers are ever objects of beauty; and the Hearts-ease, (*Viola tricolor*,) it is the variety *arvensis*, with the petals shorter than the calyx, which I have seen.

May 12th.—The season has, up to this time, been very cold, and vegetation is generally backward. Took a ramble this afternoon over Staddon Heights as far as Bovisand. On walls in the outskirts of Plymouth, *Arenaria serpyllifolia* was in flower. In the hedges of the road passing through Catdown limestone quarries I noted, as in flower, *Geranium rotundifolium*,^{*} *Medicago maculata*, *Sisymbrium officinale*, *Parietaria officinalis*. Taking a boat at the margin of the quarries, and crossing Catwater, I landed at the village of Turnchapel, whence my tract lay across steep fields overlooking the Sound; and a glorious prospect is presented from these fields—such a panorama of land and water, of hill and dale, of crowded towns and deserted wastes, one would travel far to match. Here I found *Ranunculus parviflorus* in abundance, but as yet rather small and unbranched; *Sinapis arvensis*; *Medicago lupulina*; *Trifolium procumbens*; *T. arvense*; *Anagallis arvensis*, sparingly; *Stachys arvensis*, few and immature; on the old stone hedges, *Myosotis collina*,† with its small but rich blue petals, rivalling the turquoise—truly a most exquisite gem. *Armeria maritima*, on the ledges of the precipice, with its roseate tints, was smiling on the dark gulph of waters beneath, or, if I may indulge in figures, the Sea Pinks were standing on their unapproachable pedestals, like blushing vestals separated from the giddy world, and deprecating communion therewith; for, really, he who would venture to rifle their charms, must have no fear of the "*facilis descensus Averni*" before his eyes. Associated with the last-named plant were *Anthyllis vulneraria* and *Lotus corniculatus*; and near at hand *Chrysanthemum leucanthemum*, with golden disk and silver rays, was, as it were, just peeping above the floral horizon—its flowers not being yet fully expanded. Whilst gazing in delight upon this galaxy of littoral beauty, which was still more enhanced, and rendered even gorgeous by one vast mantle of golden furze, which covered the slopes, emitting a luscious perfume that was gratefully subdued by the sea-breeze; the Cuckoo blent his monotonous note with the murmuring sea below, and heightened my enjoyment almost to ecstacy. Oh! for the poet's utterance to express my sentiments!

Arum maculatum was bursting from its pent-house, and wielding its club-like

* This plant is plentiful in this neighbourhood. Some of your readers in the midland counties, where I understand it is rare, may be gratified to know this. Should any of them want specimens, I shall feel a pleasure in supplying them.

† Although this genus of plants is difficult to distinguish when dried, yet they are not so growing; they present very marked differences. Young Students find the written descriptions insufficient; but let them have the living plants once pointed out to them, and they will not err afterwards. I would earnestly recommend any one about to take up Botany, to endeavour to form acquaintance with some one who has made progress in the study. Scientific men are generally accessible.

inflorescence to awe intruders upon its privacy. *Poterium sanguisorba* partially unfolded. *Polygala vulgaris*—one specimen in bloom. This is a beautiful flower, and when seen in large clusters, as it is here in the summer-time, is remarkably attractive. In a rivulet, *Nasturtium officinale*.

Having reached my boundary, Bovisand, which overlooks the Breakwater, I find there *Selene maritima*, and an immense patch of *Mœchia erecta*—mentioned before, but worthy, from its abundance here, of being named again. I must not trespass further upon your space, than to say that on my homeward walk, I added to my collection *Specularia hybrida* and *Linum catharticum*; and that, while scudding hastily along, my attention was arrested by a small bed of *Myosotis*, which should be *versicolor* by its form, but the corollas were perfectly white, and the plants of a much paler green than usual—a variety unnoticed by me before.

ISAIAH W. N. KEYS.

Plymouth, May 13th., 1851.

CONTRIBUTIONS TO THE FAUNA OF FALMOUTH.

BY W. P. COCKS, ESQ.

(Continued from page 64.)

Cirl Bunting, (*Emberiza cirrus*), *Mont.*—Not uncommon.

Chaffinch, (*Fringilla cœlebs*), *Penn.*—Common.

Mountain Finch, (*Fringilla montifringilla*), *Penn.*—Two shot in the neighbourhood of Falmouth, February, 1847; in the possession of Mr. N. Tresidder. Several at Pennance Point in the winter of 1846 and 1847. March 19th., 1849, a fine male specimen on a branch of the black thorn, leading to the Furze common, Swanpool.

Tree Sparrow, (*Passer montanus*), *Selby.*—Pennance and Swanpool, January, 1850: rare.

House Sparrow, (*Passer domesticus*), *Selby.*—Common.

Greenfinch, (*Coccothraustes chloris*), *Flem.*—Woodlane Terrace; three in old Penryn road, November, 1849: scarce.

Hawfinch, (*Coccothraustes vulgaris*), *Flem.*—Woodlane, Trefusis, etc.: scarce.

Goldfinch, (*Carduelis elegans*), *Selby.*—Common.

Siskin, (*Carduelis spinus*), *Selby.*—Rare. I examined the two that were shot in the neighbourhood in 1847. Male and female on a blackberry branch, old Penryn road, November 30th., 1849; one near Penryn road, January 10th., 1850.

Common Linnet, (*Linota cannabina*), *Yar.*—Common.

Mealy Redpole, (*Linota canescens*), *Gould.*—Fields near Pennance: rare.

Lesser Redpole, (*Linota linaria*), *Yar.*—In the same locality: scarce.

Bullfinch, (*Pyrrhula vulgaris*), *Flem.*—Not common.

Common Crossbill, (*Loxia curvirostra*), *Penn.*—One was shot in the Orchard, Grove hill, Woodlane, by Mr. T. S. Skinner. The specimen was preserved,

and in the possession of Mr. N. Tresidder for some time. Three shot at Carelew, April, 1850: very rare.

Starling, (*Sturnus vulgaris*), *Penn.*—In winter and spring, common.

Chough, (*Fregilus graculus*).—One shot in the neighbourhood, November 26th., 1850: rare.

Raven, (*Corvus corax*), *Mont.*—Swanpool, Pennance, etc.: not uncommon.

Carrion Crow, (*Corvus corone*), *Mont.*—Common.

Rook, (*Corvus frugilegus*), *Penn.*—Common.

Jackdaw, (*Corvus monedula*), *Penn.*—Common.

Magpie, (*Pica caudata*), *Gould.*—Common.

Creepie, (*Certhia familiaris*), *Penn.*—Not uncommon.

Wren, (*Troglodytes vulgaris*), *Flem.*—Common.

Hoopoe, (*Upupa epops*), *Linn.*—Two shot (male and female) by Mr. Gill, Mendon bottom, near Mainporth; presented to the Truro Museum.

Cuckoo, (*Cuculus canorus*), *Penn.*—Not uncommon. Dr. Williams' Son shot a beautifully-marked specimen in his garden, Middle Terrace, 1849.

Kingfisher, (*Alcedo ispida*), *Penn.*—Gwyllyn Vase, Swanpool, etc.: not uncommon.

Swallow, (*Hirundo rustica*), *Penn.*—In summer, common.

Martin, (*Hirundo urbica*), *Mont.*—In summer, common.

Swift, (*Cypselus apus*), *Mont.*—In summer, not uncommon.

Nightjar, (*Caprimulgus Europæus*).—Not uncommon.

Ring-Dove, (*Columba palumbus*), *Penn.*—Domesticated.

Stock-Dove, (*Columba ænas*), *Penn.*—Domesticated.

Rock-Dove, (*Columba livia*), *Selby.*—Domesticated.

Turtle-Dove, (*Columba turtur*), *Penn.*—Domesticated.

Pheasant, (*Phasianus Colchicus*), *Mont.*—In the season, shops and markets, common.

Turkey, (*Meleagris gallopavo*), *Linn.*—Domesticated.

Peacock, (*Pavo cristatus*), *Linn.*—Domesticated.

Cock, (*Gallus domesticus*), *Briss.*—And varieties.

Guinea fowl, (*Numida Mealeagris*), *Linn.*—Domesticated.

Partridge, (*Perdix cinerea*), *Penn.*—In the season, not uncommon.

Quail, (*Coturnix vulgaris*).—One was taken alive on board a Pilot boat by Mr. B. Lowry, six leagues from the harbour, May 10th., 1850; now in the possession of Mr. Runnell, Hair-dresser. Two shot in the neighbourhood, September, 1850; in the possession of Mr. Tresidder.

Great Plover, (*Edicnemus crepitans*), *Selby.*—Gwyllyn Vase, Swanpool: rare.

Golden Plover, (*Charadrius pluvialis*), *Penn.*—Gwyllyn Vase, Swanpool, etc.: not uncommon.

Dotterel, (*Charadrius morinellus*), *Mont.*—Bar Point, Gwyllyn Vase, etc.: rare.

Ringed Plover, (*Charadrius hiaticula*), *Penn.*—Pennance, Swanpool, etc.: not uncommon.

Grey Plover, (*Squatarola cinerea*,) *Flem.*—Rare.

Peewit, (*Vanellus cristatus*,) *Flem.*—Gwyllyn Vase, Swanpool: not uncommon. January 17th., 1850, flushed a covey consisting of seventeen birds, on Mr. G. C. Fox's estate, Pennance.

Turnstone, (*Streptilas interpres*,) *Flem.*—Scarce.

Sanderling, (*Calidris arenaria*,) *Flem.*—Not common.

Heron, (*Ardea cinerea*,) *Penn.*—Penryn Creek, low water: not common.

Bittern, (*Botaurus stellaris*,) *Selby.*—Penryn Creek, College wood, market: not common.

Curlew, (*Numenius arquata*,) *Penn.*—Gwyllyn Vase, Swanpool: not common.

Whimbrel, (*Numenius phæopus*,) *Penn.*—Gwyllyn Vase, Swanpool, Pennance, etc.: not common.

Redshank, (*Totanus calidris*,) *Flem.*—Gwyllyn Vase: rare.

Sandpiper, (*Totanus hypoleucos*,) *Selby.*—Gwyllyn Vase, Swanpool, etc.: not uncommon. Dr. Williams' Son shot a fine specimen (October, 1849,) at Swanpool.

Greenshank, (*Totanus glottis*,) *Flem.*—One specimen shot at Swanpool, winter of 1845: very rare.

Wood Sandpiper, (*Totanus glareola*,) *Flem.*—Shot by T. Passingham, Esq., Swanpool, August 28th., 1847.

Green Sandpiper, (*Totanus ochropus*,) *Flem.*—Shot by T. Passingham, Esq., August 28th., 1847.

Avocet, (*Recurvirostra avocetta*,) *Penn.*—Shot at Swanpool, November, 1845. The second bird shot in the locality within the last ten years.

Black-winged Stilt, (*Himantopus melanopterus*,) *Selby.*—Shot at Swanpool by Mr. J. Genn, Silversmith.

Black-tailed Godwit, (*Limosa melanura*,) *Selby.*—Shot by Mr. May, at Swanpool, December 12th., 1846.

Woodcock, (*Scolopax rusticola*,) *Penn.*—Common in winter.

(To be continued.)

Spring Arrivals.

Early appearance of the Cuckoo.—In corroboration of the fact, that the Cuckoo, at least occasionally, makes its appearance during the winter months, as noticed in No. 2, of "The Naturalist," I send you an extract from my "Journal of Natural History," dated Ormskirk, December 28th., 1833. "During a walk with my friend R. C., I saw a Cuckoo flying across the fields below the church. Having pointed it out to him, he told me he had heard one calling only a few minutes before, but did not mention the circumstance, fearing I should laugh at the idea of his hearing the Cuckoo in the depth of winter. The day was remarkably mild, which was quite a treat, the weather having been very stormy and unsettled for a long time." The following notice is appended

to the entry in my Journal, as a note:—The Liverpool Courier, of January 1st., 1834, contained a paragraph stating that the Cuckoo had been heard in Rutlandshire, during the preceding week.

I shall keep a good look out for the Hirundines, and note their arrival. One of my boys told me on the third instant, that he saw three Swallows fly over the town between eight and nine in the morning. I mention this as it was noticed to me; there may have been some mistake, as we have not seen any since. I certainly ought not to doubt its accuracy, for my children are keen observers in the different departments of Natural History.—*W. B.....w, M. R. C. P., Fleetwood, April 10th., 1851.*

The Cuckoo, (*Cuculus canorus*), was heard on the 20th. of March, and the Swallow, (*Hirundo rustica*), on the 28th., both unusually early here. The Corncrake, (*Crex pratensis*), I heard on the 7th. instant, for the first time this year.—*John Garland, Dorchester, Dorset, May 9th., 1851.*

Arrival of Sand Martins, (Hirundo riparia,) in Northumberland.—While out trout-fishing near the source of the River Till, which takes its rise amongst the Cheviot Hills, on Saturday, April 19th., I observed for the first time a couple of Sand Martins. The locality is mountainous. Wind west, and blowing high.—*A. S. Moffat, Bewick Folly, Eglington, Northumberland, April 25th., 1851.*

I saw a Swallow, (*H. rustica*), to day at Upper Helmsley, near York. A gentleman, with me at the time, said he saw one on April 20th, at Skelton.—*B. R. M.—York, May 1st., 1851.*

OBSERVATIONS THIS SPRING ON THE ARRIVAL OF THE HIRUNDINIDÆ IN NORFOLK.

Chimney Swallow, (<i>H. rustica</i>),	April 18th.	Weather—mild.	Wind—south.
Sand Martin, (<i>H. riparia</i>),	April 19th.	do.	Wind—varying from south-west to south-east.
Window Martin, (<i>H. urbeia</i>),	May 2nd.	do.	Wind—varying west by north-west.
Swift, (<i>Cypselus apus</i>),	May 7th.	Weather—milder than the three previous days.	Wind—west.

S. O. Harper, Norwich, May 7th., 1851.

In the beginning of the month of February of this year, I obtained fresh from the nest, Eggs of the Blackbird, Hedge Accentor, and Redbreast; found in the outskirts of this city.—Idem.

The Blackcap Warbler, (*Curruga atricapilla*), Whitethroat, (*Curruga cinerea*), Haybird, (*Sylvia trochilus*), Whinchat, (*Saxicola rubetra*), and Redstart, (*Phœnicura ruticilla*), made their appearance in this neighbourhood at the same time as the Swallows. The Swift, (*Cypselus apus*), was seen here on the 8th. of May; wind in the south, into which quarter it had only shifted the day before.—*G. B. Clarke, Woburn, Beds., June 12th., 1851.*

Saw the first Swallow on Thursday, April 17th. A few young Crows hatched on April 7th., but the generality of them not until a week later

They appear to me to be some days forwarder in this county—Bedfordshire, than in Lincolnshire.—*R. P. Alington, Dunstable, April 29th., 1851.*

Miscellaneous Notices.

Hare and Rabbit.—In reply to Mr. Mc'Intosh's inquiry in No. 3, I may state that a neighbour of mine has an animal stuffed, which was caught in Somersetshire, which is apparently a cross between a Hare and a Rabbit; the body resembling in form and colour the Hare, and the head and ears the Rabbit. Hares would be very unlikely to breed if kept in Rabbit hutches.—*Henry Tuckett, Frenchay, Bristol.*

Waxen Chatterer, at Devizes.—A notice of the occurrence of a specimen of the Waxen Chatterer last February, and which was shot on the Five-lanes farm, and was preserved by Mr. Dangerfield, of Devizes, has been obligingly forwarded to us by Charles O. Hyde, Esq., Highgate.—*B. R. M., May 7th., 1851.*

Waxen Chatterer, at Devizes.—A splendid specimen of this bird was shot at Worton, near Devizes, in the month of February last. A fine specimen of the same species, was also shot in the same village, in February, 1850.—*R. Maysmor, Devizes, May 29th., 1851.*

In two sand banks on Aspley Heath, about two miles from here, the holes of the Sand Martin, (*Hirundo riparia*,) have been taken possession of by between fifty and sixty pairs of Starlings, (*Sturnus vulgaris*,) which have built and reared (or nearly so) their first brood there, and I have no doubt but what they will the second. If the poor Sand Martins, who have been so unceremoniously deprived of their holes, intend building there, which they probably will, as there is plenty of space still left, they must at once set to work and scrape out some fresh holes, as I believe the Starlings will keep possession of those they now have.—*G. B. Clarke, Woburn, Beds., May 12th., 1851.*

One of the common Wild Ducks, in Woburn Park, last year, laid her eggs and hatched them on a piece of a branch of an oak, about twenty inches in length from the trunk; the remains of a branch which had been broken off by a storm some time before; which projected over a pond, and about twelve feet from the bottom of the tree. When the person who climbed the branch reached the nest, the young ones, (with the exception of three, which he caught,) tumbled, in their hurry to escape, headlong into the water below.—*Idem.*

Albino Meadow Pipit, (Anthus pratensis.)—An Albino variety of this bird occurred some time ago in this vicinity. It was found by a country lad, in a nest of three or four fully-fledged young, of the usual colour and markings, about four miles from Glasgow. On being disturbed, the young birds left the

nest and attempted to escape, but, the white one catching his eye, its strange appearance led him to capture it, and bring it home alive. He fed it for a few days, when it died. I did not get an opportunity of examining it till after it had been stuffed. The colour was of an uniform creamy white, more intense on the strong wing feathers and tail; the bill, legs, feet, and claws, were of the same colour: the eyes were red when the bird was alive.—*John Gray, Glasgow, May 8th., 1851.*

CALENDAR FROM JANUARY 26TH. TO FEBRUARY 28TH., 1851.

JANUARY, 1851.

- | | | | |
|----|--|----------------|--------------------------------------|
| 26 | <i>Leontodon taraxacum.</i> | Dandelion..... | Commenced flowering in
Yorkshire. |
| 31 | Primroses, White Violets, Buttercups, and Daisies, are in flower in Devonshire at this date. | | |

FEBRUARY.

- | | | | |
|----|---|---|--|
| 2 | <i>Leontodon taraxacum....</i> | Dandelion..... | Commenced flowering in
Devonshire. |
| 3 | <i>Perdix cinerea.....</i> | Partridge..... | Commenced pairing in
Yorkshire. |
| 5 | <i>Geranium dissectum.</i> | Wild or jagged-leaved Geranium. | Commenced flowering in
Devonshire. |
| 6 | <i>Primula vulgaris.....</i> | Primrose, (Common.)..... | Do. Yorkshire. |
| 8 | <i>Potentilla fragariastrum..</i> | Strawberry-leaved Cinquefoil.... | Do. Do. |
| 9 | <i>Geranium rotundifolium..</i> | Round-leaved Geranium..... | Do. Devonshire. |
| 12 | <i>Myosotis palustris.....</i> | Forget-me-not..... | Do. Yorkshire,
in gardens. |
| 13 | <i>Motacilla alba.....</i>
(Kiveton park,) | Water or Pied Wagtail..... | First seen in Yorkshire,
and a few days later in great numbers. This bird is common in
Devonshire both in summer and winter;—it is called there the ‘Ditchwasher.’ |
| 18 | <i>Narcissus pseudo narcissus.</i> | Common Daffodil..... | Commenced flowering in
Devonshire. |
| 20 | <i>Viola canina.....</i> | Dog Violet..... | Do. Do. |
| | <i>Ranunculus ficaria.....</i> | Pile wort Crowfoot, or lesser Celandine | Do. Yorkshire. |
| 22 | <i>Caltha palustris.....</i> | Common Marsh Marygold..... | Do. Nottingham-
shire; Marsh, near Blyth. |
| 23 | <i>Bellis perennis.....</i> | Common Daisy..... | Commenced flowering in
Yorkshire. |
| 28 | <i>Vinca minor.....</i> | Lesser Periwinkle..... | Do. Do.
Flowers much earlier
in Devonshire. |

S. Hannaford, Jun., Kiveton Park, Rotherham, May 7th., 1851.

A few remarks on “The Fauna of Falmouth,” by W. P. Cocks, Esq. (See page 37.)—I was surprised to see in the above mentioned interesting communication, a statement, that the Notch-eared Bat, (*Vespertilio emarginatus*,) is “not uncommon” in the neighbourhood of Falmouth, as I had always understood that it was one of the rarest of our British Bats, only a very few specimens having been obtained in this country. In “The Naturalist’s Library,” by Sir W. Jardine, I find the following notice:—“I have been fortunate in procuring a specimen of this very rare species, from a gentleman, who procured it at Winchester. The species was first found at Abberville, by

M. Baillon, and by Mr. Geoffry, in the excavations at Charlemont. The latter, in describing it, states that he received a specimen from M. A. Brogniart, who found it in the neighbourhood of Dover." Now, as the *notched ear* is *not peculiar* to this Bat, is it not possible that some other species may have been taken for it. Bell states, that after a careful examination of several specimens of the species described by Jenyns, as *V. emarginatus*, he has been convinced of its identity with the *V. Daubentonii*, of Kuhl and Desmarest, which is by no means so rare as the true *V. emarginatus*. If Mr. Cocks would send a description of a specimen to "The Naturalist" it would doubtless be gratifying to many readers. I was not less surprised at his mentioning *six* different examples of the genus *Mus*, one of which he calls "Brown Rat," (*Mus intermedius*.) Does he consider it *merely a variety* of the *M. decumanus*, or, as a distinct species. Sir W. Jardine, (and, I believe, Bell also,) only mentions *five* species belonging to this genus, as indigenous in Britain. Some further account of the *M. intermedius*, would therefore be satisfactory.—*Henry Ferris*, 22, *Briggate, Leeds*, 4mo: 8th., 1851.

Nesting of the Domestic Pigeon.—I am enabled to confirm the statement of your correspondent, in No. 1. of "The Naturalist," respecting the nest of the common House-Pigeon. A pair of my Pigeons have recently built, and their nest was composed principally, though not altogether, of twigs. I should estimate that seven or eight-tenths were twigs; and what renders the circumstance more remarkable, is, that we live where it would have been far more easy for the birds to procure straw than twigs. One very curious article which formed part of the nest, was a broken comb, which, I presume, had been found on a neighbouring ash-heap. I observed also that, in the case of this pair, the cock bird brought nearly all the materials, while the hen constructed the nest. I think in most cases it will be found that the cock Pigeon sits during the day, leaving the nest towards five o'clock in the evening, and that his mate sits after that hour through the night. The passage quoted from "The Architecture of Birds," is at page 159, and not at page 119, as printed in "The Naturalist."—*W. D. B., Fleetwood, April 11th., 1851.*

Greater Black-backed Gull, (*Larus marinus*), in *Bedfordshire*.—The Rev. R. P. Alington, in "The Naturalist," page 58, says, "that he is not aware of ever having observed one of the Greater Black-backed Gulls, (*Larus marinus*), in mature dress, over the sea-bank." I had one in the spring of 1849, which was shot at Hoekliffe, about four miles from Woburn, Beds., which you are aware is a great many miles from the sea.—*G. B. Clarke, Woburn, Beds., May 12th., 1851.*

The Great Northern Diver, (*Colymbus glacialis*), taken near *Fordingbridge*.—A few weeks since, a fine specimen of the Great Northern Diver was killed by a man, in the forest, not far from here. He was walking past some low furze and heath, when, much to his astonishment, this visitor from the north ran out from his hiding-place, and fiercely attacked the man's legs; who, by a sharp knock on the head with a stick he had in his hand, quickly put an

end to his assault, and his life. I saw the bird soon afterwards, and it appeared to have no other wound than the recent fracture of its skull. It was a male in fine plumage.—*J. Pemberton Bartlett, Fordingbridge, Hants., February 3rd., 1851.*

Change of plumage in the Blackbird, (Turdus merula,) on moulting.—I have now a Blackbird, which has been a prisoner from the nest, and which has tenanted a large room about six years. In his autumnal moult, the year before last, both his wings became white, while the rest of his body was as jetty as ever. In moulting last autumn, his plumage, (much to my disappointment,) returned to its usual sombre hue. There was no change of diet, or anything that I could discover, to cause this curious freak.—*Idem.*

Occurrence of the Short Sun Fish, (Orthogoriscus mola,) at Lynn.—A fine specimen of this fish was taken by some fisherman near Lynn, on the 5th. of November last. Its dimensions were four feet two inches long, two feet one inch deep, and about fifteen inches thick.—*T. S., Lynn, Norfolk, April 9th., 1851.*

Review.

A Popular History of British Sea-weeds, containing their structure, fructification, specific characters, arrangement, and general distribution, with notices of some of the Fresh-water Algæ. By the REV. D. LANDSBOROUGH, A. L. S., Memb: Wern: Soc: Elin: and Author of "Excursions to the Isle of Arran." London: REEVE, BENHAM, AND REEVE, 1851, 1 vol., Royal 16mo., Second Edition. *With numerous coloured plates.*

To those who, in visiting the sea-side, wish to spend their time, profitably and agreeably, in preserving and arranging specimens of the various Sea-weeds which they may find in their rambles on the shore, the above unpretending little volume will be a most useful and pleasant assistant.

The first portion of the work is occupied with a very interesting description of the structure, colour, growth, and fructification of Sea-weeds, together with their distribution and uses. The whole of this "Introduction" is written in an easy and pleasant style, and will prepare the reader for the more technical part which follows. This commences with a list of all the British Sea-weeds; next to which, we find a concise and accurate description of the plants themselves, their families, genera, and species, interspersed with valuable and extremely interesting remarks, both on the plants treated of, and also on the various other marine productions commonly found with them, such as Zoophytes, or some of the numerous molluscous animals with which Sea-plants are so often infested. This portion of the work will enable any one readily to determine any of the Sea-weeds found on our coasts; and the portable size of the volume will allow of its being carried in the pocket to the rocks, where many of these very attractive objects may be examined in all their native beauty.

We next have a similar outline of the more remarkable of our Fresh-water

Algæ, and then comes a chapter of instructions for the preservation and arrangement of the specimens procured, which will be most useful to those who wish to have their *spolia opima* in a condition to exhibit to their friends, in somewhat of their pristine elegance and beauty: few botanical collections are more attractive than one of nicely prepared sea-weeds; and those who follow Mr. Landsborough's directions will find little difficulty in rendering their marine herbarium an object of interest as well as beauty. Those who wish to encourage a taste for such pursuits in any of their young friends going to the sea-side, cannot lay out half-a-guinea better than in making them a present of this very useful little work, and if they are themselves bound on a similar journey, they will not regret purchasing it for their own use.

Proceedings of Societies.

Yorkshire Naturalists' Club.—The monthly meeting was held, as usual, at Mr. Graham's, in Jubbergate, on Wednesday evening, May 7th., when there was a full attendance of members. WILLIAM GRAY, Esq. occupied the chair.

Several interesting objects were exhibited by MR. T. STUBBS, of Ripon. Among them the windpipe of the Velvet Scoter, (*Oidemia fusca*;) a fine specimen of the nest of the *Vespa Britannica*; the skull and portion of the skin of the Walrus, (*Trichechus Rosmarus*;) several pieces of Ash wood, obtained last year, on which the excavations of a small beetle, (*Anobium*,) of a class exceedingly destructive to timber, were beautifully shown; also several specimens of the beetle itself, etc.

DR. MORRIS exhibited a fine specimen of the Old English Black Rat, (*Mus rattus*,) for which he was indebted to the kindness of W. Richardson, Esq., of Stockton-on-Tees, where it was captured recently. He also exhibited several fine specimens of the Stoat, or Ermine, (*Mustela erminea*,) in its white winter fur, and called the attention of the club to the large number of these animals, which had been procured in this state during the past winter, notwithstanding its extreme mildness; showing that the change in colour of the fur must be dependent on other causes than mere severity of cold.

MR. GRAHAM exhibited two splendid adult specimens of the White-tailed Eagle, (*Haliaeetus albicilla*,) which had been procured in Sutherlandshire; also the male and female of Stellers Western Duck, (*Somateria dispar*;) all of which he had recently mounted to W. M. E. Milner, Esq., M. P. He also produced a specimen of the Fifteen-spined Stickleback, (*Gasterosteus spinachia*,) which he had received from Scarborough.

DR. MORRIS exhibited several interesting sections of wood by the microscope, particularly one of the Indian Wood, called *Phytocrene*. "In this curious production the wood consists of plates containing vessels and woody tissue, having no connexion with each other, and separated at very considerable intervals by a large mass of prosenchymatous cellular tissue, filled with vasiform tissue, and representing medullary rays. When the stem is dry, the woody plates separate from the other tissue, in which they finally lie loose."—*Lindley*. Dr. Morris also exhibited, by the microscope, some specimens of Marine Algæ.

THE REV. D. LANDSBOROUGH, whose interesting little work on Sea-weeds, should be in the hands of every Algologist, was present as a visitor, and exhibited a fine series of most beautifully preserved Sea-weeds, many of them of considerable rarity; after which he kindly gave the members present a very clear, interesting, and useful account of the best methods of mounting and preserving specimens of Marine Algæ, and by which, in fact, all the specimens on the table had been so beautifully preserved, as to appear rather like elegant and highly-finished drawings, than specimens of "worthless Sea-weed." The account was received with great interest by the members.

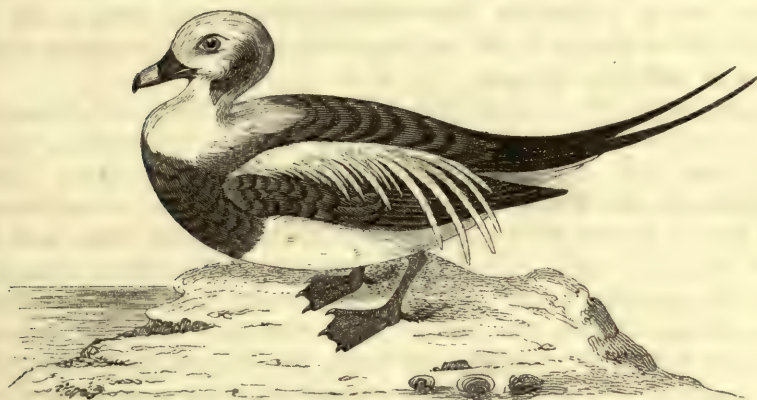
The following new members were admitted:—Capt. C. J. Featherstone, R. N., Ripon; and the Rev. J. Overton, Sessay.

NOTES FROM THE ROCKS.

ON THE NATURAL HISTORY OF DUNBAR SHORE.

BY ROBERT GRAY, ESQ.

(Continued from page 108.)



NORTHERN HARELD.

THERE is every variety of plumage in the birds of the Fuligula family;—the deep velvet black of the Scoters, relieved in one of the species by a pure white bar in the wing; the showy dress of the Eider, young individuals of which exhibit a piebald coat; the rich glossy green and other contrasting colours of the beautiful Golden Eye; the purple and black crest of the Tufted Scaup, (*Fuligula cristata*;) and the pheasant-like tail of the Northern Hareld, (*Harelda glacialis*), are well-known examples.

Two species, which may be considered the types of the Fuligulinæ, are very common,—the Broad-billed Scaup, (*F. marila*), and the Red-headed Pochard, (*F. ferina*;) of the latter great numbers frequent the estuary of the River Tyne, where, in moonlight evenings, we have seen it shot by our friend, Mr. J. Nelson, of Kirklandhill. According to the observations of that gentleman, it and the Widgeon, (*Mareca penelope*), are the two commonest Ducks in the bay throughout winter. However expert it may be at diving, it certainly, like its congeners, gives a preference to shallow running streams at nightfall; and, during the entire day, it is never absent from the bay, though always a long way out. Both of these birds, (*ferina* and *marila*), associate freely with the other Anatinæ night and day; but others, as the Long-tailed Duck, (*H. glacialis*), fish exclusively by themselves. The last-named species is a very interesting bird, which visits the shores of East Lothian in winter. In the northern regions it assembles in large flocks previous to migrating; and “in

the latter end of August, when a thin crust of ice forms during the night on the Arctic sea, the female may be often seen breaking a way with her wings for her young brood."²

The habits of this beautiful bird, in common with many others, may easily be studied with a good pocket telescope, an instrument of great service to every sea-side ornithologist, and one which ought in many cases to supersede the deadly fowling-piece. Many a time and oft, have both been levelled at the species now under notice, by the hand that pens this hint; but, it must candidly be admitted, that the former serves every purpose for the student whose pursuits do not embrace anatomical details, or whose cabinet is not in want of a specimen.

In fine weather the Northern Hareld may be seen in small bands, (generally a male and two or three females,) floating over the sand-banks in various parts of the Frith of Forth, where they procure their food by diving. When the naturalist has discovered them at this employment, let him use his glass, and he will see the whole disappear at intervals under the water, with the exception of one which does the duty of sentinel, when they are fishing in dangerous proximity to the shore. I have watched them when so engaged, at a distance of about one hundred yards: they were diving for shells and crustacea to a depth of eighteen or twenty feet,—a good performance when it is considered they had only the resistance of the water to act upon without the impetus of a plunge. On this occasion I could see the long tail feathers of the male jerked upwards when he dived, and when the party approached nearer my place of concealment, it was interesting to notice them reappearing at the surface, and devouring what they had caught. It is seldom, however, an opportunity can be had of seeing them feeding; they seem indeed rather shy in approaching land. Like the Corn-crake it is oftener heard than seen; and though the bird is well known to fishermen and others frequenting the sea-shore, by its loud and clangulous cry of '*calloo*,' few of them could identify a specimen in the hand. The '*calloo*' is often heard in stormy weather, and has a wild effect when heard above the sound of the waves; it gives rise to the name of 'coal and candle light,' amongst Scottish rustics. I have found it a difficult matter to get a specimen of this Fuligula, though it is tolerably common in Dunbar bay throughout the winter; the best plan is for the sportsman to go a little way out to sea in a small boat, by which means it may be easily approached.

We have on the table before us a beautiful male bird of this species; and by its side are lying a pair of Broad-billed Scaups, the acquisition of which cost us a little trouble at the time, and many days and nights of it afterwards; and with the following extracts from one of our Journals, we conclude our present chapter:—

One stormy evening in January, 1848, we set out with a companion in search of Scaups for our museum; and having arrived at a suitable place where

a rivulet joins the sea, we proceeded to pile up a screen of large stones, behind which we squatted, without either ease or dignity, to await the arrival of some unfortunate victim. Snow had fallen to the depth of two or three inches since the recedal of the tide, and had covered the broad field of rocks with a heavy mantle; and we soon besprinkled our wall with several handfuls, the better to hide our whereabouts. We had no sooner withdrawn our guns from their covers, than we observed three ducks, at a distance of two hundred yards, silently approaching a passage between two ledges of rocks, which stood like guards at the mouth of the stream. Their extraordinary speed of swimming soon realized our suspicions of their being Pochards, as no other than the broad paddles of a *Fuligula* could have reached us so soon.* In a few moments they were opposite our place of concealment, and we had leisure to watch their movements. After traversing the large sheet of water, and not finding a suitable feeding-place, they again made for the passage opening to the sea; but a Mallard at this moment alighted on a rock a few yards behind, and attracted their attention. Then came others flying about us, some even alighting in pools within three or four yards distance. The snow shower had passed off, and all was still for a time, the only sounds, besides the hollow noise of the waves, being the whewing of the Widgeons as they flew over our heads. The Scaups were paddling before us in a kind of bewilderment, and they came nearer and nearer, as if inviting the Mallard to join them; but he seemed more intent on preparing his feathers for the water, than on receiving the addresses of his less elegant neighbours. What were our own feelings? We had a longing eye to them all, but what were we to do? There was a heavy tier of pitchy clouds away towards the north, and though the Ducks were distinctly visible on the water, it was not unlikely we should lose sight of them in the darkness if they took wing. We threw into each barrel a few pieces of slug, and cast one look at the single bird, and another at the trio; but, unfortunately for the latter, the *Fuliginæ* were the class of coast birds which at that time occupied our studies; and without further reflection on the comparative value of one handsome Mallard, and, it might be, three clumsy Scaups, we aimed at the majority. Our companion fired, and two of the birds lay dead on the rippling pool, while the third never attempted to leave them. It paddled from one to the other in mute wonder, exhibiting the same affection as many other birds in a like bereavement. Being without a water-dog, and unwilling to lose our ill-gotten prey, we plunged in and struck out for the floating prize. The live Duck tarried by its dead companions till we nearly laid hold of it; and when at last it took flight, it uttered a stifled croak and flew round and round the spot; for, although the night was dark, we could sometimes see it dip towards the water, and we heard the

* Naturalists or sportsmen, in search for these birds, would do well to take up their position close to the edge of the sea, near any opening in the rocks leading to smooth water behind, as they very frequently form into swimming companies of six or seven, and travel in this way to their feeding ground.

whistling of its wings overhead as we picked up the shot specimens. They proved to be the White-fronted, or Broad-billed Scaup, (*F. marila*), male and female in immature plumage; and the other bird which displayed such faithfulness to its unfortunate fellow-travellers, appeared to be of the same species. After a little while it returned, and, on alighting, resumed its sorrowful mutterings; but, although several stones were thrown at it, we could not compel it to leave the place.

(To be continued.)

AN ACCOUNT OF A DAY'S EXCURSION TO BUTE.

BY JAMES P. FRASER, ESQ.

THE dreary season of winter has taken its departure at last, and spring, with all its beauty and freshness, has burst upon us; gradually have the trees been unfolding their beauty, and the sun revealing himself in his power.

We have completed our first trip this year to the Frith of Clyde—that huge inland lake—that mighty estuary, subdividing itself into numerous smaller ones, which lies between the lobster-like claws of the Mull of Cantyre and the Ayrshire coast. Girdled in by giant mountains, its very storms impress us with a feeling of security. It extends its glassy surface amid these watchful guardians, a wayward and happy thing, never for a moment the same.

Having entered the boat, we felt somewhat tired and languid, but the morning air refreshed us, and the sea-breeze increased our appetite, so that we began to long for the breakfast-hour: it did at length arrive, and after effecting a compromise with, and satisfying the demands of, the inner man, we felt ourselves vastly comfortable, and again ready for deck.

Once more above. The coldness of the morning air is yielding to the genial heat of the growing sunshine, yet the morning seems scarcely awake. Nature has a thousand moods—a thousand varying aspects; and in each of these there is something on which the eye may rest itself with delight, and which the mind may contemplate with profit.

We find we have travelled some distance since we last left the deck; we have passed Gourock upon our larboard, and are now dashing over and onward to Dunoon. Upon our right the mountains of the Holy Loch are towering in all their grandeur. This lovely little Loch is but a portion of Clyde sideling inland, as if delighting to linger in the bosom of these lofty mountains.

Dunoon lies right before us; it is the nucleus of a long tail of beautiful cottages, which extends to the mouth of the Holy Loch. It is adorned with a number of dark trees, chiefly firs; but the mountain behind is sterile to the top. The whole district, for some miles, consists of the mica slate and clay slate system, which stretches across the breadth of Scotland, from Kincardineshire on the east, to Argyleshire, Bute, and Arran, on the west. The

mica slate is highly indurated, and in walking along the shore, one is naturally struck with its contorted and curved appearance, and the variety of form which it occasionally assumes. It is beautifully traversed, here and there, by veins of compact quartz. This slate is sometimes used by the inhabitants for economic purposes; many houses of an inferior grade being roofed with it.

The parish church, towers pre-eminently from the centre of the village, and forms a beautiful feature in the landscape. It is connected to the Castle-hill by a mass of foliage, through which rises the elegant summer residence of Mr. Eglinton. The Castle-hill is a green knoll formed of a very dark greenstone, and a section of it is laid bare on the shore, where the protrusion of the igneous rock through the clay slate is exhibited; the disturbance and crystallization of the latter by the former, being perfectly manifest at the point of contact, to the most careless observer. It is beautifully clothed with verdure, and on the summit a small part of the ruin is still standing. As we proceed southwards, the long range of clay slate mountains is discovered to be nicely variegated with hill and valley, and Dunoon is observed to stand upon a point of considerable prominence. There have been a great number of stone coffins discovered here with the bones in a fine state of preservation, each in its proper place: in other respects also, the district is not wanting in antiquities of interest.

Creeping along by the Cowal shore, we sail so near, that the mica slate can be distinctly seen ranging from north north-east to south south-east, with a dip to the south at an angle nearly vertical. It is amusing to contrast the dingy little huts lying snugly in some sheltered spot half-way up the hill, with the beautiful white-washed cottages at its base: they look like the dark aborigines of America looking down upon the fair Europeans, who have taken possession of their shores, and driven them far off into the back woods. On the other side of the Frith, a new line of coast comes into sight, beyond the Cloch lighthouse. Right in front lie the islands of the Great and Little Cumbrey, but obscured by the thick ground haze, while the small coasting vessels are looming in the distance, on the farthest verge of the horizon.

Upon our right, we find we have now left the slaty region, and have come upon the old red sandstone, which may be seen at the water's edge; the colour of the houses, too, is altered; the white-washed greenstone having given place to the dark red-colour of the sandstone, imposing a sombre look upon the landscape; the very hill has changed its aspect, it no longer wears the sharp and angular summit, and rugged side, but has acquired the gentle slope, and rounded top; the barren and sterile rock, with the brown and dingy look of the heather, have yielded to a richer soil, and a beautiful carpet of verdure. We have now arrived at Toward lighthouse, which is situated upon the point of a low peninsula, composed of a conglomerate of the old red; and immediately beyond, the lovely island of Bute lies luxuriating in the morning mist. On rounding Toward point, the noble seat of the late Kirkman Finlay, Esq., is seen rising over the bend of the hill; and just underneath the house, dykes

of porphyry may be seen traversing the sandstone, and at some points crossing each other.

In crossing from this point to Bute, we perceive a most beautifully-defined ancient sea margin upon the east point of the island, and a corresponding one upon the west side of the Cumbrey, which lies immediately opposite. A stretch of three miles across the entry to the Kyles, places us at the quay of Rothesay. This town is beautifully and snugly situated in a deep bay, and stretches out its lovely arms on both sides, as if to welcome the delighted visitor. In sailing along the eastern arm of this bay, and just before arriving at the quay, the old red sandstone conglomerate is again laid bare upon the shore, and forms the entire beach at this part of the coast.

Rothesay was formerly frequented by herring-fishing boats, but it is now a favourite watering place; and in the summer months, presents a gay and lively scene, being resorted to by people from all parts of Great Britain. To the south and east of Rothesay, the island is composed of the old red sandstone, while to the north and west it consists of mica slate and clay slate, traversed by trap and quartz veins. There is a large quarry of greenstone in the immediate neighbourhood of the town, out of which most of the houses have been built. We understand beds of coral and shells, of considerable thickness, are found in many places, half-a-mile inland; but having never visited them personally, we are quite unable to state anything particular regarding them. There are also some beds of limestone, and one or two thin seams of very indifferent coal met with, to the south-east of the town. It may be interesting to state that the island is divided into four portions by three beautiful valleys, which terminate in large bays on each side of the island. There can be no doubt that these valleys formed, at one time, three arms of the sea, dividing what is now one island into four: it is further worthy of notice that the entire coast road runs along a level terrace, which has been the former beach; for the cliffs, which, in many parts, rise above the road, are here and there worn into caves, and bear other marks of the action of water.

But we must to the shore, and examine its zoology, which was the principal object we had in view, in this short but very pleasant excursion.

On landing, we found ourselves somewhat stiff, after a sail of three hours and a half; but after ascertaining our last opportunity of return home, we started at a sharp pace to reach our ground, and make the most of our time. After walking about a mile and a half, one of our party suddenly disappeared into one of the houses, which lay upon our left; we found he had formed the resolution to remain here till the following day, and that he escaped into his residence for the night, to make preparations for collecting. Upon his reappearance, we bounded across the fence in a body, all eager for the work.

Having arrived on the ground, we found the slate rocks very thickly clothed with a species of knotty *fucus*, under which dwelt the various animals

which will be noticed in the remaining part of this sketch. On walking over this external covering of the rocks, we found it not to be very sure-footing; for one was slipping and making a narrow escape from a tumble; another with boots not wholly impervious to water, was stepping into some concealed pool, and extracting his foot a degree or two cooler, and with a little additional moisture; we found all the pools concealed, in fact completely covered, with this sea-weed. Many of the shells, in consequence of this protection, are in beautiful condition; even some of the specimens which we picked up of the common limpet, (*Patella vulgata*), were very fine. *Patella (Lottia) testudinalis*, Müller—a shell which has hitherto been considered rare or local in its distribution, we found in great abundance; on almost every stone we took up there were, at least, two; but from one stone in particular, about a foot square, we detached thirty specimens. Many were of large size, and beautifully marked. There is a good figure of this shell in "Thorpe's British Marine Conchology," (Frontispiece, figure 103.) One of our party found a remarkably fine specimen, having the entire inside of a dark brown colour, approaching to black; and others were obtained, with markings of an opposite character, the inside being of a dull white, without the dark brown on the muscular impression.* We did not observe *Lottia virginea*, though in some parts of the Frith it is common.

Chiton marginatus and *C. levis* occurred but sparingly, and the specimens we got were small; they are much more plentiful in the east of Scotland. The same may be said of *Trochus cinereus*. The state of the tide precluded our getting at the ground where *Pholas candida* is very abundant; but we were not much too late; for one of our party, who, in his enthusiasm had rushed into the water, said he was standing on the bank which contained them. This mollusk burrows in stiff clay, in this locality, and can with difficulty be dislodged. *Modiola vulgaris*, old and young, we found in great numbers, in company with Echini and Star-fishes, in fissures of the rocks clad with sea-weed. Occasionally we met with a few Myæ or Gapers in the wet sand, protruding an inch or so above the surface, but it was extremely difficult to get a specimen without breaking it, on account of the rapidity of the movements of the animal downwards.

Of the Echinodermata, we procured a few good specimens. *Ophiocoma bellis*, we found in company with *Asterias rubens*; the latter occurred in profusion, and all were of a deep purple colour, with the exception of one or two gigantic individuals, which displayed the usual hues, and measured nearly a foot across. One of our party, an experienced collector, who had taken the precaution to furnish himself with the proper apparatus and

* This species is the *Patella Clealandi* of Sowerby, and the *P. Clypeus* of Brown. It does not appear to be found on the east coast of Scotland, the only localities cited by authors being Bangor in Wales, and the Isle of Man. In Scotland it occurs at Gourrock, besides the locality we have mentioned. Its measurement, from the anterior to the posterior margin, is usually from half an inch to an inch in diameter. One large and beautiful specimen, in the cabinet of Mr. J. Gray, measures one inch and three-eighths.

accoutrements, waded a little distance off shore, and picked up a fine specimen of *Solaster papposa*, as large as the crown of a man's hat.

The Purple-tipped Urchin, (*Echinus miliaris*), was very abundant, and we all supplied ourselves with a fine series of specimens. These we found moored by their suckers to old valves of *Modiola vulgaris*, bits of earthenware, and flat stones; sometimes occurring in clusters underneath the sea-weed, on the sea-weed itself, and at the bottom of those concealed pools, which rendered some of our party not very comfortable. We saw some pretty large specimens of the Common Egg Urchin, (*Echinus sphaera*), which had been denuded of their spines, and in other instances they had been partially destroyed, but they were again growing; we observed that the young spines, as well as the old, were much blunted, and all of a dirty white colour.

Our experienced and enthusiastic friend, of whom we have already spoken, had no sooner completed his preliminaries, than we saw him describe, what appeared to us, some cabalistic signs on the wet sand. On rushing up and watching his motions, we perceived him describe a circle with his two fore-fingers, and cunningly insert them to some depth; then he brought to light a beautiful specimen of what we, in our ignorance, took for a ripe and yellow plum; this was *Amphidotus cordatus*; and having in another case watched his motions, we proceeded to practise by searching for little holes in the sand, then digging round them till we reached the urchin, which was generally buried from two to three inches deep; the specimens we got were all in beautiful condition. We noticed that when put into fresh water, some of them assumed a purple tinge, while others became greyish white; in the former case the yellow had disappeared without colouring the water; and in the latter, the water was changed to a bright yellow. The shell of the creature is somewhat fragile. *Brissus lyrifer* is found in the bay.

The only crustacean worth noticing was a species of *Ligia*, of a pea-green colour, and differing in many respects from *Ligia oceanica*. Only one of our party took an interest in these creatures; and we noticed him deposit his capture carefully in a pill box; but we have not since had an opportunity of determining the species.

On lifting the weed from one of the pools, we descried something dart off to the side and vanish beneath a stone; the person who discovered it, immediately sounded the alarm, and the whole of our party might be seen stooping over the prey, each seizing, but in turn losing it, owing to the slippery nature of the material. At length, after some scratches from the rocks, and from the nails of our friends, we succeeded in securing our victim, and depositing him safely in a bottle. We had a similar adventure at another pool not far distant; these individuals were, the one a specimen of *Blennius guttata*, the other of *Cottias scorpius*. *Arenicola piscatorum*—the common sandworm, appeared to be very abundant. The bay of Rothesay abounds in varieties, which can, however, only be brought to light by means of a dredge; and if we can manage to make out an excursion this season, we hope to lay before

our readers some account of it.

Our time being now quite exhausted, we had to retrace our steps to the quay, and thus, to our regret, brought to a conclusion our first excursion for the season.

Glasgow, May 6th., 1851.

THE SKY-LARK, (*ALAUDA ARVENSIS*.)

BY J. MC'INTOSH, ESQ.

"The Laverock in the morning he'll rise frae his nest,
And mount to the air wi' the dew on his breast."

THE Sky-lark or Laverock, by which latter name it is generally known in Scotland, and especially by its poets, is truly the bird of the morning. It is not merely the herald, but the awakener of the dawn, and is thus described by the old dramatist, Lilly:—

"Brave prick-song! who is't now we hear?
None but the Lark, so shrill and clear,
Now at heaven's gate she claps her wings,
And morn not wakens till she sings."

How delightful it is to catch the first glimpse of that glorious orb of day peering over the eastern hills, and to watch the Sky-lark soaring and soaring, till it becomes a mere speck, or is altogether lost to our sight in that vast and beautiful expanse of sky, while its thrilling notes still fall upon our ears. When at its greatest height, should a bird of prey make its appearance, it closes its wings, and drops like a stone to the ground, and should the intruder continue to hover near, the Sky-lark lies motionless; its colour or markings so much resemble the colour of the earth that it in general escapes the talons of its enemy. But when descending in its own joyous manner, it comes down by repeated falls, as it were, fluttering and singing till it arrives near the ground, when it becomes mute. It appears to me not to be generally known that the Sky-lark has two broods in the year, at least it is the case in the southern counties. The first is fledged in the beginning of June, and the second in August, at which time we have frequently found their nests in valleys and high chalky corn-fields. In the more northern counties, where the snow remains longer on the ground, and the springs are later, we have never met with more than one brood, which is generally fledged about the end of July. It is also usually supposed that the Sky-lark does not settle or perch on trees; this is however, a mistake; we have frequently seen and shot them from off the twigs of trees, where they await for the passing insect, on which they dart, and having secured their prize return to the bough. Their nests are generally composed of dried roots and grass, also of leaves, with finer materials of the same for a lining, placed on the

ground by the side of a tuft of grass, or a turf, in which will be found from three to five eggs. White and dun-coloured varieties of this species of Lark are frequently met with.

Notwithstanding all the casualties to which the eggs of this, and other ground-nesting birds are exposed, as also the adult birds of this species, their numbers do not diminish to any extent. It is not only in England that the Sky-lark is destroyed for the sake of its flesh, to satisfy the gormandizing epicure, but all over the European continent. We are informed that in Germany they are made the source of national revenue, being subject to an excise duty; and on the plains by which Rome is encompassed on the east and south, vast flocks of Sky-larks assemble in autumn; and it is the custom of the gentlemen, and the ladies, too! of the eternal city, to go forth to enjoy the sport of Lark-shooting! The destruction of these birds is to a certain extent just and necessary, for the protection of wheat, barley, oats, peas, and vetch crops, on all of which they commit sad havoc, just as the young grain is peeping through the surface of the soil, and any naturalist may easily convince himself of the fact in a corn county, by the use of a telescope and dissection, or by a walk across a field of spring-sown corn etc., he will there find heaps of the husks of the grain in question, and flocks of Sky-larks arising from their plunder at his approach. Let it be here understood, that I am not signing their death warrant, on the contrary, I am fully aware of the many and important services rendered to the husbandman by these interesting little warblers who sing

“Their songs of welcome to the gladsome spring,”

in the destruction of countless thousands of his insect enemies; and to those who are, and may be inclined to act on the defensive side of the question, let them pause and read the poet Thomson’s humane appeal in behalf of birds in general:—

“Oh! let not, aim’d from some inhuman eye,
The gun, the music of the coming year
Destroy; and harmless, unsuspecting harm,
Lay the weak tribes, a miserable prey,
In mingled murder, fluttering on the ground.”

It is the duty of the naturalist to point out, without favour or prejudice, the good and the bad qualities of the animals he attempts to describe, for the benefit of the cultivators of the soil, who are in general, but indifferent observers of the wonderful and beautiful works of the Great Almighty, so that they may be enabled to distinguish their enemies from their friends, and not, as we too often see them, dealing death and destruction around them: they should bear in mind,—

“That all things have an equal right to live.”

I will add one more note with respect to the gay and cheerful Sky-lark,

and have done. Mr Jesse, author of the "Gleanings in Natural History," says at p. p. 22 and 23, with respect to the claws of the Sky-lark, which are particularly long, that they are used by the birds to remove their eggs and young to a place of greater security, when they are threatened with injury or destruction. Having paid close attention for years to the habits of this bird, I have never been fortunate enough to meet with the like occurrence; perhaps some more acute observer may have? and if so, I, and I have no doubt others of your numerous readers, would be glad if they would favour us with their observations on this very singular habit of the Sky-lark. In conclusion, I cannot refrain from adding to my already lengthy notes, the following beautiful lines from the poet Milton:—

"Hark! hark! the Lark sings 'mid the silvery blue!
Behold her flight, proud man, and lowly bow;
She seems the first that does for pardon sue,
As though the guilty stain which lurks below
Had touched the flowers which droop'd above her brow,
When she all night slept by the daisies' side;
And now she soars where purity doth flow,
Where new-born light is to no sin allied,
And pointing with her wings, heavenward our thoughts would guide."

THE COMMON PARTRIDGE, (*PERDIX CINEREA*.)

BY J. MC'INTOSH, ESQ.

Your correspondent, Mr. Henry Tuckett, requests information on the incubation of the Common Partridge, perhaps the following notes may prove interesting to that gentleman and others, although not from the pen of a Waterton. In the quotation from the sacred book a query arises. The prophet says "*sitteth on eggs*;" are we to understand from this, that the eggs were of a different species, or actually the eggs of the Partridge; will some of your clerical ornithological correspondents enlighten our darkness on this subject?

The Partridge manifests the greatest caution in choosing the place of nidification, (of course there are exceptions to the rule,) and may be observed for a week or ten days, in pairs, near the spot, with a view to ascertain if there should be any enemies in the immediate neighbourhood, that might molest or prove destructive to them or their eggs; and if their suspicion is aroused, they betake themselves off in search of a fresh spot, which is generally in the open corn or grass fields; yet their nests, which are composed of a few pieces of grass and leaves scraped carelessly together, may be found in small strips of plantation, which are so common in agricultural counties, for the purpose of shelter, in hedge-rows, and on heathy moors, bordering

on cultivated districts, on the top of hay-stacks, and we have even found them in holes of decayed trees in hedge-rows, about four feet from the ground.

During the time of incubation, and in fact till that operation is completed, the hen will, and always does, remain upon her eggs till hatched, with a pertinacity unequalled by almost any other bird; we have seen this strikingly exemplified, in many instances even ending in the death of the bird, and it yearly occurs in the operation of mowing for hay, when many birds meet with their death by the accidental blow from the scythe of the mower, rather than leave their eggs exposed. We have frequently captured the hen while sitting on her eggs, and have passed our hand down her back without her moving or showing the least fear; but if we touched the eggs, she would immediately peck at our hand in a fierce manner, as much as to say, you have no business there. Montagu records an instance of one which allowed itself and eggs to be deposited and carried into captivity in a *hat*, and brought forth her young. The time of incubation is from three to four weeks, and sometimes less. They begin to pair in February, and commence laying in May and June.

The affection for her young is peculiarly strong: in carrying out which she is greatly assisted by her companion: they lead them out, and call them together to feed, which food, while young, consists principally of the larvæ of ants, with flies, and other small insects. In the case of danger, if not too near, the hen will hide her young under her wings, and the male will flutter along, as if its wing were broken, to allure the approaching enemy to a considerable distance, will then suddenly drop, as if quite dead, then by a circuitous route, will hasten to the spot lately occupied by itself, partner, and young, to announce that the danger is past.

The sensual ardour of the male has been the theme of many writers, and there are instances out of number in which the parental solicitude of the female has justly called forth their eulogistic admiration. Partridges are frequently hatched under the care of the Domestic Hen, and, when able to feed themselves, let loose in the preserves of gentlemen. They are easily tamed, and will breed in confinement; we have had them so tame as to peck crumbs from the hands of strangers with a degree of familiarity not surpassed by the common domestic fowls of the farm-yard. On this taming subject we shall perhaps be quoted by some sage zoologist, as we have been with respect to the Cuckoo and Black Woodpecker; should it not meet with that scientific gentleman's approbation, he will, I hope, refrain from inserting any portion of it in his pages, however greater the publicity it may obtain in his pages, over those of our juvenile "Naturalist."

Charminster, Dorset, April 24th, 1851.

NOTES ON THE LEPIDOPTERA OF THE WEST OF SCOTLAND AND FIFESHIRE.

BY J. GRAY, ESQ.

(Continued from page 86.)

LEAVING off in our last paper with the *Bombyces*, we now proceed to notice the more interesting species of the Scottish *Noctuæ* that have come under our notice in this district; a group of much interest to the entomologist, whether as regards the economy and curious habits of many of the species, or the beautiful and often delicate markings with which they are adorned; some of them indeed, possessing more allurements in that respect, than many of the more highly coloured *Diurna*; a quality which even in the eye of a strictly scientific naturalist, is as much admired, and far better appreciated, than by those with whom it is the only point of interest.

Even to the entomologist who has been accustomed to confine his attention exclusively to British species, this remark cannot fail to prove sufficiently obvious; but its full force can only be felt on examining the luxurious productions of warmer climes, whose interesting forms and structure, combined with the exquisite loveliness of their markings, render this section of the insect world a field which can hardly be trod without peculiar delight.

Though these few notes on our native Lepidoptera have been called forth solely by a desire of recording some portion of the Scottish productions, and of illustrating the more general distribution of species; and though any attempt at an arrangement has been studiously avoided, still we cannot help remarking the propensity for the making of genera which this order of insects exhibits; not a few species having been separated from their congeners under a distinct generic title, on some ground or difference purely specific. One cause of this seems to us to lie in the undue weight attached by some entomologists, to the characters of the insect as exhibited in the caterpillar state. These we have always considered to be much subordinate in value to those of the perfect insect, as partaking, in some degree, of its own transitory nature at that stage, destined, as it is ere long, to merge into a completely developed structure; the *permanent* characters of which surely afford a much more obvious ground, and induce safer conclusions for generic distinction.

The exclusive partiality so often exhibited by British entomologists for native species, which of themselves are totally inadequate for forming correct views on the subject, is doubtless another reason why the generic divisions of our native insects have been so frequently based upon such nice distinctions; a partiality which can only result in the most narrow-minded views of the systematic arrangement of one of the most numerous and interesting divisions of the animal kingdom.

In the following notes on the *Noctuæ*, we have only introduced such species as have fallen under our own observation, purposely omitting any notices of the occurrence of those with which we have not been personally conversant;

our object being to present a general view of the productions of this district, rather than to compile a list of rare captures.

Of the genus *Triphæna*, three species are distributed very generally throughout the West of Scotland; namely, *T. orbona*, *pronuba*, and *Janthina*. *T. pronuba*, though common enough everywhere, seems to have a particular liking for stack-yards, often appearing in hundreds, when a quantity of hay is being removed. It is also frequently observed during the summer nights in the streets of towns, probably attracted by the lights. *T. orbona* occurs in the same localities, but is not nearly so common. *T. Janthina*, though generally esteemed a scarce species, was particularly abundant last season throughout Scotland, and was taken in great profusion at Govan, and elsewhere near Glasgow, flying swiftly over the ivy, in the beginning of August.

Chareas graminis is very common in the month of August, during the day-time, at Netherton, near Lanark, and at Kirkintilloch. The peculiar habits of this insect, and its irregular period of flight, have been often noticed. We have generally found it on the wing in the morning and afternoon, hovering over the flowers of the ragwort or thistle, and sometimes appearing to suspend itself by its sucker; during the heat of the day, however, we have almost invariably taken it in a sort of dormant state, settled on the flowers of the above plants; on being alarmed it would immediately attempt to escape by tumbling down amongst the grass, and wriggling itself head foremost into the roots.

Caradrina cubicularis, *Agrotis exclamationis*, and *A. Tritici*, congregate together in out-houses during the day, often in considerable numbers.

Noctua plecta and *N. Augur*, are very plentiful in hedge-rows and woody places everywhere; *N. Dahlii*, *baja*, *brunnea*, and *C. nigrum*, though generally distributed, are much less frequently met with.

Rusina tenebrosa appears to be a scarce species in this district, as we are only aware of its occurring a few miles from Glasgow.

The more common species of *Hadena*, are *H. Pisi*, *Chenopodii*, *Brassicæ*, *basilinea*, and *Oleracea*, which are met with in abundance in many places; *H. thalassina* and *testacea*, though far from rare, are still not very frequently observed, while *H. Protea*, *glauca*, *Cucubali*, and *adusta*, might almost be termed scarce. The two last species, indeed, we have only taken in the Carmichael woods, near Lanark, towards the end of June. *H. contigua* also occurs in the same locality, at the end of May. It is pretty common in the larva state, feeding on the birch and various other shrubs in July.

Scotophila Porphyrea and *Anarta Myrtilli*, are common on heaths everywhere.

Cosmia trapetzina, *Pyrophila Tragopoginis*, *Segetia Xanthographa*, *Orthosia stabilis*, *O. gothica*, and *O. instabilis*, are very generally distributed; *O. Litura* also occurs in various places in Lanark and Renfrewshire, but is much scarcer.

Euplexia lucipara is found sparingly on the Frith of Clyde, in Argyleshire. *Thyatira Batis* occurs also on the Frith of Clyde, in various localities, but

is not at all common.

Nænia typica, *Xylophasia rurea*, *X. polyodon*, and *X. lithoxylea* are abundant near Glasgow and elsewhere.

Actebia Præcox appears to be altogether a coast insect, and is very generally distributed along the west coast of Scotland, in Ayrshire.

Calocampa exoleta is found near Ayr, *C. vetusta* also occurs in this district, but is much less common.

Tethea duplaris is not uncommon near Lanark, at the end of June, flying over whitethorn hedges, in the twilight. *T. Or* is found sparingly near Glasgow,

Scoliopteryx libatrix and *Polia Chi* are not at all common, though occurring sparingly in Renfrewshire and Fife.

The two beautiful species of *Miselia*, *aprilina* and *oxyacanthæ* are found sparingly near Glasgow and Hamilton.

Mormo Maura is rare in this district, occurring, however, in the vicinity of Glasgow, and in Ayrshire. It is generally found near some stream, much resembling in its flight the fluttering jerks of bats.

Achatea spreta is found in fir plantations in Renfrewshire, not unfrequently.

Cucullia umbratica is rare, and is the only species of the genus we have noticed in this part of the country. It occurs in Renfrewshire, and near the Frith of Clyde, in Argyleshire.

The following species, though not very common, yet seem to be very generally distributed in many localities through the whole district:—*Celæna Haworthii*, *Miana arcuosa*, *Xanthia flavago*, *X. fulvago*, *Apamea nictitans*, *Abrostola Urticæ*, *Euclidia Mi*, and *E. glyphica*. The last species is however rare.

Plusia interrogationis is found in heathy places, and is particularly plentiful in the Isle of Arran. *P. festuæ* is generally found in the vicinity of moist places, but does not appear to be very plentiful. *P. bractea* occurs at Netherton, near Lanark, hovering in the twilight, over the flowers of the honeysuckle, but it is by far the rarest of the genus. *P. Gamma* and *P. chrysitis* are common throughout the whole district. *P. Iota* occurs in open woody places near Glasgow, and elsewhere, often in company with *P. percontationis*, though we have generally observed that a locality that abounded with one of these species, seldom produced above a few specimens of the other.

Phlogophora meticulosa appears in two broods, in June, and again in September, and is common through all this district; it is frequently observed during the day, sitting on garden walls.

Apamea oclea in many varieties, *Gortyna micacea*, *Miana fasciuncula*, *Acronycta Psi*, and *A. Rumicis*, are all common through the district.

Leucania pallens, *L. impura*, and *L. pygmina* are also common, the latter, contrary to the habits of its congeners, we have always taken on the wing, in the day-time. *Leucania pudorina* also occurs sparingly.

Many species of *Noctuæ* apparently survive the winter, as they are often seen flying in ditches near hedge-rows, early in the spring. *Noctua plecta*,

baja, *brunnea*, *basilinea*, *C. nigrum*, *Plusia Gamma*, etc., are amongst the number.

(To be continued.)

INSTINCT OF THE HOUSE SPIDER.

BY A. S. MOFFAT, ESQ.

ONE afternoon last summer, I offered, to a very small House Spider which had hung its web upon a plant in my sitting-room window, a Fly somewhat larger than itself; on the Fly struggling in the web, I observed the Spider first to examine it attentively for a short time, when, I suppose, conceiving it too powerful to encounter off hand, it at once deliberately commenced to envelope the Fly with cords, so as to bind it completely, and render escape impossible; this it accomplished by running round the Fly in every direction, a thread at the same time issuing from its spinnerets, so as to effectually enfold it in toils. After this precautionary measure, the Spider approached its victim cautiously, and struck it repeatedly with its venomous forceps, retreating quickly after each stroke. Here was certainly a very extraordinary instance of a remarkable instinct, a pseudo intelligence, in this little creature! On examining the Fly, it doubtless considered it too powerful to contend with so long as it remained unbound, while at the same time every probability existed of its being strong enough to shatter the tiny web in pieces, to guard against which, it immediately thought of, (if I may use the expression,) surrounding it with cords, so as to trammel its legs, and render its escape futile. The creature seemed also aware of the fatal effects of its poisonous fangs, as it patiently awaited the issue, after a few strokes were given, darting back after each encounter, in order to avoid the clutches of the Fly. What more could the lord of creation have done in similar circumstances? Truly the most humble and insignificant of the Creator's works, manifest the impress of the finger of God!

In order to discover if this was the usual manner of despatching their victims, I offered a similar Fly to a Geometric Spider, which had hung its net in the corner of a garden door-frame, but in place of using any precautionary measures, the Spider conceiving itself perfect master of its antagonist, at once darted upon its game, and despatched it with its mandibles.

I observe that Spiders continue to entertain themselves at their meals, for a longer period than may be generally supposed. One morning about eight o'clock, I gave a Geometric Spider a middle-sized Fly, which it immediately seized; I observed it again several times during the day, and for the whole time until five o'clock in the evening, it was engaged with its repast. It appeared only to suck the fluids from the body.

The leg of the Harvestman Spider, (*Phalangium Cornutum*), is divided below the last joint into numerous articulations, and terminates at the foot in a hooked claw; it also contains an internal tube, full of fluid, which I consider may

be the apparatus for extending the leg and foot; for on compressing the upper part of the tube, the fluid is propelled from that portion of the limb towards the lower extremity, so as to extend the limb in a straight line, or even to cause it to curve in the reverse direction, while, on the pressure being removed, the lower part of the limb returns, by its own elasticity, into a sort of inward coil. It may be that this elasticity of the articulated portion of the lower limbs, and its disposition to coil inwards, when the compression of the muscles upon the upper part of the tube is withdrawn, is enough to propel the body of the Spider forwards. The Star-fish has limbs similarly moved.

Bewick Folly, June 28th, 1851.

CONTRIBUTIONS TO THE FAUNA OF FALMOUTH.

BY W. P. COCKS, ESQ.

(Continued from page 114.)

Great Snipe, (*Scolopax major*,) *Penn.*—One shot in the Marsh, Gwyllyn Vase, December, 1848: rare.

Common Snipe, (*Scolopax gallinago*,) *Penn.*—Common. Mr. N. Tresidder has one in his possession of a cream-colour.

Jack Snipe, (*Scolopax gallinula*,) *Penn.*—Not uncommon.

Curlew Sandpiper, (*Tringa subarquata*,) *Flem.*—Gwyllyn Vase, Swanpool: not common.

Knot, (*Tringa canutus*,) *Mont.*—Bar point, Gwyllyn Vase, Swanpool: not uncommon.

Little Stint, (*Tringa minuta*,) *Flem.*—Bar point, Gwyllyn Vase, Swanpool, Pennance: not uncommon.

Pectoral Sandpiper, (*Tringa pectoralis*,) *Jenyns.*—Gwyllyn Vase, east: rare.

Dunlin, (*Tringa variabilis*,) *Selby.*—Gwyllyn Vase, Swanpool: not uncommon.

Purple Sandpiper, (*Tringa maritima*,) *Penn.*—Bar point, Gwyllyn Vase, Swanpool, etc.: not common. November 22nd., 1846, one shot by Mr. Pascoe; 1847, one by T. Passingham, Esq., Swanpool; 1848, one by Mr. G. Copeland, Pendennis Castle.

Landrail, (*Orex pratensis*,) *Selby.*—In the market: rare.

Spotted Crane, (*Orex porzana*,) *Selby.*—November 1848, a specimen in the market, but so mutilated as to be not worth preserving. October 1849, one was shot by Mr. May, at Swanpool: now in the possession of Mr. Chapman.

Water-rail, (*Rallus aquaticus*,) *Penn.*—Swanpool, market, etc.: not uncommon.

Moorhen, (*Gallinula chloropus*,) *Penn.*—Swanpool, etc.: not uncommon.

Coot, (*Fulica atra*,) *Penn.*—Swanpool, etc.: not uncommon.

Grey Phalarope, (*Phalaropus lobatus*,) *Bew.*—October 9th., 1846, a fine male bird, in full summer plumage, was captured alive by a miner: it is in the possession of Mr. N. Tresidder. Mr. May, on the 12th of the same month, shot four at Swanpool, and I examined upwards of thirty that season.

Red-necked Phalarope, (*Phalaropus hyperboreus*,) *Penn.*—Scarce.

Grey-legged Goose, (*Anser ferus*,) *Jenyns.*—In winter and spring rare.

White-fronted Goose, (*Anser albifrons*,) *Jenyns.*—December 19th., 1849, six seen in Looe river, Helford: two shot, one in the possession of Mr. Chard, Grocer, 26th. of the same month.

Brent Goose, (*Anser torquatus*,) *Jenyns.*—Found dead upon the sand, Gwyllyn Vase, December 1846.

Egyptian Goose, (*Anser Egyptiacus*,) —One was shot at Helford, in the autumn of 1849, by Mr. Veal, ferryman.

Hooper, (*Cygnus ferus*,) *Flem.*—A flock containing six Swans, alighted in the Carrack road, near St. Just, January 1830. Two were shot; one was preserved by Mr. N. Tresidder, for Mr. Drew. From the description in his note book, I am convinced it must have been the '*Cygnus Bewickii*,' Yarrell.

Sheldrake, (*Tadorna vulpanser*,) *Flem.*—Gwyllyn Vase, Swanpool, etc.: rare.

Shoveler, (*Anas clypeata*,) *Penn.*—Shot, Carrack road, near Mylor creek: rare. One purchased at Mrs. Dunning's, by Mr. Chapman, October 25th., 1849. January 19th., 1850, in the market common, (males and females.)

Gadwall, (*Anas strepera*,) *Mont.*—Gwyllyn Vase bay: rare.

Pintail Duck, (*Anas acuta*,) *Penn.*—One shot by Mr. May, Pennance point, 1845. A second specimen was shot at Swanpool, 1847: rare.

Wild Duck, (*Anas boschas*,) *Mont.*—Swanpool, Gwyllyn Vase, etc.: in winter not uncommon.

Garganey Duck, (*Anas querquedula*,) *Mont.*—Shot in the pool, Swanpool, by a quarryman, March, 1846: rare. A second specimen was in the possession of Mr. N. Tresidder.

Summer Duck, (*Dendronessa galericulata*,) *Swain.*—One was shot near the Noir, Helford, in the summer of 1848.

Teal, (*Anas crecca*,) *Penn.*—Penryn creek, Gwyllyn Vase, Swanpool, etc.: not uncommon.

Wigeon, (*Anas penelope*,) *Penn.*—Penryn creek, Mylor creek, Gwyllyn Vase, Swanpool: not uncommon.

Velvet Scoter, (*Oidemia fusca*,) *Flem.*—Truro river, Carrack road: rare. A young female was shot by Mr. G. Pender, Helford, December 4th., 1850.

Common Scoter, (*Oidemia nigra*,) *Flem.*—Truro river, Carrack road, etc.: rare. Found one on the beach, Flushing.

Surf Scoter, (*Oidemia perspicillata*,) *Flem.*—In the winter, 1845, found a mutilated specimen on the beach, near the magazine, Pendennis Castle: rare.

Red-crested Whistling Duck, (*Fuligula rufina*,) *Selby.*—This rare bird was shot at Swanpool, February 1845, and sold in the market for sixpence: very rare.

Scaup Duck, (*Fuligula marila*,) *Selby.*—January 19th., 1850, an old female (market,) shot at St. Keverne. Bill, dark lead-colour; nail, black; head and neck, blackish brown; the lower parts of the neck and breast, darker; belly

and snout, white; base of bill, encircled with a broad white line; legs and feet, lead-colour; web, darker.

Pochard, (*Fuligula ferina*,) *Selby*.—January 19th., 1850; market, common.

Golden Eye, (*Fuligula clangula*,) *Yar.*—Gwyllyn Vase bay, Swanpool: scarce. One shot in the pool, January 29th., 1848, by Mr. Street.

Snew, (*Mergus albellus*,) *Mont.*—Shot in Truro river, January, 1845; a second in the Fisherman's cove, Penryn creek, February 1846; a third specimen was wounded by some young gunners, Penryn creek, December, 1848.

Red-breasted Merganser, (*Mergus serrator*,) *Penn.*—One shot at Fisherman's cove, Penryn creek, December, 1846; and in November, 1847, a second specimen was procured; Truro river and its branches: not uncommon.

Goosander, (*Mergus merganser*,) *Penn.*—Several have been shot in the Penryn creek, since 1844.

Eared Grebe, (*Podiceps auritus*,) *Lath.*—Two fine specimens were shot (1847,) by T. Passingham, Esq., near Pennance point, Swanpool; several have been seen this year, (1849,) Gwyllyn Vase and Swanpool. One shot at Swanpool, January 15th., 1851, by Mr. Gill.

Little Grebe, (*Podiceps minor*,) *Penn.*—Swanpool: common. October 10th., 1849, I observed ten or twelve young ones, certainly not more than three or four days old, with their parents in the Swanpool; December 1st., same year, between two and three dozen full-grown in the pool.

Great Northern Diver, (*Colymbus glacialis*,) *Penn.*—A splendid male shot in Carrack road, March 1845, by a black cook; January, 1846, one was shot in the same locality; December, 1847, one in Gwyllyn Vase bay; December 26th., 1848, two seen in the bay. Mr. Johns states that an old male bird has visited the bay every May month, for the last six or seven years.

Black-throated Diver, (*Colymbus arcticus*,) *Penn.*—Shot in Carrack road, January 1846: very rare.

Red-throated Diver, (*Colymbus septentrionalis*,) *Penn.*—Shot near Pennance, February 2nd., 1845.

Young of Red-throated Diver, (*Colymbus stellatus*,) *Gmel.*—(Young of the *C. Septentrionalis*,) Gwyllyn Vase bay, Pennance, etc.: not uncommon. Mr. N. Tresidder took from the stomach of one shot near Pennance point, more than twenty of the *Ammodytes lancea*, from six and a half to eight inches in length.

Common Guillemot, (*Uria troile*,) *Penn.*—Gwyllyn Vase, Swanpool bay, Pennance, etc.: not uncommon.

Black Guillemot, (*Uria grylle*,) *Mont.*—Gwyllyn Vase bay.: scarce

Little Auk, (*Mergulus alle*,) *Linn.*—Found a dead bird on the sands, Pennance, December 19th., 1846; mutilated remains of one, Bream bay sands, March 7th., 1847. Mr. Devonshire found one on the sands, Gwyllyn Vase: in the possession of Mr. N. Tresidder.

Razor-bill, (*Alca torda*,) *Mont.*—Gwyllyn Vase, Swanpool bay, etc.: not uncommon. Found a recent (dead) specimen on the sands, Gwyllyn Vase, January 3rd., 1849. Mr. May shot a young bird in the same locality,

January 9th., 1849.

Puffin, (*Fratereula arctica*,) *Flem.*—Gwyllyn Vase bay, Swanpool, etc.: not common. One on the beach January 27th., 1850.

Cormorant, (*Phalacrocorax carbo*,) *Flem.*—Gwyllyn Vase, Swanpool, Mainporth, Pennance harbour, etc.: common.

Green Cormorant, (*Phalacrocorax graculus*,) *Flem.*—Same localities, and equally common.

Gannet, (*Sula alba*,) *Flem.*—Gwyllyn Vase, Swanpool, harbour, etc.: not common.

Sandwich Tern, (*Sterna Boysii*,) *Penn.*—Bar point, Swanpool: rare.

Roseate Tern, (*Sterna Dougallii*,) *Mont.*—Mr. May shot one at Swanpool, October 1st., 1846.

Common Tern, (*Sterna hirundo*,) *Penn.*—Winter and spring, Gwyllyn Vase, Swanpool, etc.: not common.

Black Tern, (*Sterna fissipes*,) *Penn.*—Six were shot in the pool, (Swanpool,) by the Messrs. Jones, Cornish, and Williams, October 1849; three preserved by Mr. Chapman.

Little Gull, (*Larus minutus*,) *Mont.*—Two were shot by T. Passingham, Esq., at Swanpool, January 1847. In the same month Mr. Lanyon captured one alive at Ponsnooth: preserved by Mr. Chapman.

Black-headed Gull, (*Larus ridibundus*,) *Penn.*—Harbour, Penryn river: not uncommon. Master Cox shot the largest and finest I ever examined, November 1847.

Kittiwake Gull, (*Larus tridaetylus*,) *Penn.*—Harbour, Gwyllyn Vase, Swanpool: not uncommon.

Common Gull, (*Larus canus*,) *Mont.*—Harbour, Penryn river, etc.: common.

Lesser Black-backed Gull, (*Larus fuscus*,) *Penn.*—Harbour, Penryn river, Gwyllyn Vase, Swanpool: not uncommon.

Herring Gull, (*Larus argentatus*,) *Penn.*—Harbour, Penryn river, etc.: not uncommon.

Great Black-backed Gull, (*Larus marinus*,) *Penn.*—Harbour, Penryn river, etc.: not uncommon.

Ivory Gull, (*Larus cburneus*,) *Bew.*—Bar point, extreme low water, February 13th., 1847. Mr Spence, a gentleman from the north of England, was present when the bird took wing and directed its course seaward. The Monday following, one was shot at Penzance, by Michael Roberts. *Query*, Same bird?

Skua, (*Lestris catarractes*,) *Jenyns.*—Harbour, Penryn river, etc.: not common.

Fulmar Petrel, (*Procellaria glacialis*,) *Penn.*—Harbour, Penryn river, Gwyllyn Vase, Swanpool: rare.

Greater Shearwater, (*Puffinus major*,) *Temm.*—Harbour, Carrack road: rare.

Fork-tailed Petrel, (*Thalassidroma Leachii*,) *Gould.*—Carrack road, Gwyllyn Vase, Swanpool: rare.

Storm Petrel, (*Thalassidroma pelagica*,) *Selby.*—Harbour, Carrack road, etc.: rare.

Miscellaneous Notices.

NOTICES OF THE ARRIVAL OF THE SUMMER BIRDS OF PASSAGE,
AT HEADSWOOD AND THE NEIGHBOURHOOD, DURING THE YEAR 1851,

BY MR. THOMAS TAYLOR.

No.	NAMES OF THE SPECIES.	WHEN FIRST OBSERVED.	WHERE FIRST SEEN.
1.	Sand Martin.....	April 10,	Banks of the River Cambeck.
2.	Swallow.....	" 22,	Headswood.
3.	House Martin.....	" 23,	Newtown of Fotherington.
4.	Swift.....	May 10,	Dovecot, Walton.
5.	Goat Sucker.....	" 11,	Hayton Moss.
6.	Spotted Flycatcher.....	" 18,	River Cambeck.
7.	Ring Ouzel.....	April 15,	Gelston Forest.
8.	Redstart.....	" 18,	Swinesteads.
9.	Wheatear.....	" 21,	Headswood.
10.	Whinchat.....	" 21,	Do.
11.	Blackcap.....	" 28,	Blackhouse.
12.	Whitethroat.....	" 22,	Headswood.
13.	Willow Wren.....	" 18,	Do.
14.	Wood Wren.....	May 10,	High wood, Lanercost.
15.	Sedge Bird.....	" 11,	Banks of the Cambeck.
16.	Grasshopper Warbler.....	" 8,	Do.
17.	Tree Lark, or Pipit.....	April 22,	Headswood.
18.	Cuckoo.....	" 27,	Walton Moss.
19.	Land-rail.....	" 27,	Do.
20.	Common Sandpiper.....	" 25,	Tindale Tarn.

Headswood is on the Roman Wall, a little to the south-west of *Petriona*, the thirteenth station, and nearly two miles from Brampton, Cumberland.—*Headswood, Cumberland, June 2nd., 1851.*

The Bat.—A relative of mine was fishing in Folly Copse, on the Dart, near Totnes, Devon, last year, and discovered a Bat suspended by an artificial fly and foot line, which some one had lost in one of the trees overhanging the river, and which it had seized. It was still alive, and he secured it, as well as the gut and fly by which it hung. The fly was nearly destroyed by the efforts of the Bat to obtain its freedom.—*S. Hannaford, Jun., Kiveton Park, May 29th., 1851.*

Nest of the House Pigeon.—In "The Naturalist" of March, Mr. Hannaford states, that the House Pigeon uses twigs in the formation of its nest: I beg to confirm his statement. I have found it very constantly in the Tumbler breeds, and likewise in cross-breeds from the Tumbler. Out of a flock of about forty Pigeons that I have had at a time, at least one-third of them constructed their nests of twigs. After the birds had laid, I generally removed the twigs from the nesting pans, leaving the eggs upon the sawdust; so that they were

not liable to be dragged out by the birds accidentally removing the twigs. The same mode of building does not seem to continue in the same family: I have frequently had a pair of Pigeons that always composed their nest of twigs, the young of which have not attempted to form a nest, but have merely laid their eggs on the sawdust at the bottom of the pans. The above certainly seems at variance with Mr. Rennie's reasons for our common Domestic Pigeon not deriving its origin from the Ring-dove.—*H. J. C.*

A Pied Blackbird, (*Turdus merula*.)—Though of no very unusual occurrence, I lately observed a male Blackbird, I think in his second year, with one white wing; I am not sure about the other: tail coverts also white. It was in the course of a walk from this to Dalkeith, in the forenoon of March 25th.—*W. Bruce Cunningham*, (in a letter to the Editor,) the *F. C. Manse*, Prestonpans, June 3rd., 1851.

White variety of the Red-legged Partridge, (*Perdix rufa*.)—Rather before the commencement of the shooting season of 1850, a nearly white variety of the French, or Red-legged Partridge, was shot on the property of Archdeacon Berners, of Wolverston Park.—*R. P. C.*, Ipswich, May 28th., 1851.

A White-headed Sparrow, (*Passer domesticus*.)—A Sparrow with a dirty white head and neck, was killed in the Butter Market of this town, early in October last.—*Idem*.

Purple Sandpiper, (*Tringa maritima*.)—Early in November last, I met with two Purple Sandpipers in the flesh. One was at the Ipswich Museum; and the other I myself saw shot at Felixstow, about twelve miles from here. It was flying close to the shore, and appeared much fagged.—*Idem*.

Occurrence of the Solitary Snipe, (*Scolopax major*.)—A very fine specimen of this bird was shot by a gentleman residing at Stoke, on Shaugh Moor, near the Rabbit-warren, September 7th., 1850. I am informed it weighed above eight ounces.—*R. A. Julian*, Jun., Lara House, Plymouth, June, 1851.

Light variety of Yellow-Hammer, and also of Chaffinch.—I had a Yellow-Hammer, (*Emberiza citrinella*), about two years ago, which was shot at Eversholt, about two miles and a half from this place, which was a very light buff all over it; and on the 26th. of March, 1850, I had a male Chaffinch, (*Fringilla cœlebs*), nearly white, there being only a few coloured feathers in it. This bird was shot at Froxfield about one mile and a half from Woburn.—*G. B. Clarke*, Woburn, May 15th., 1851.

Lizards and Newts.—The Common Lizard, (*Zootoca vivipara*), is of course found in Dorsetshire, as well as in other parts of England; but I do not find any instance on record of the Sand Lizard, (*Lacerta agilis*), which is rare in England, being met with in the county of Dorset, except at or near Poole, on the Sandy heaths there. Perhaps it may therefore be worthy of mention, that I have found a specimen on the heath called Puddletown Heath, near Yellowham

Hill. The colour was of a rich brown, with black spots, and a speck in each of the spots. The common Warty-Newt, (*Triton cristatus*,) is not unfrequently met with near this town, in ponds of stagnant water; and I have taken them upon Blagdon and other places. The colours are very brilliant, and of great variety: I could not keep them long alive, and the colours soon faded when put in spirits. I have never met with any specimen of the Common Smooth Newt in this neighbourhood.—*J. Garland, Dorchester, Dorset, June 9th, 1851.*

Mode in which the Pholas dactylus makes its Crypt.—Having while residing here, opportunities of studying the habits of the *Pholas dactylus*, I have endeavoured, during the last six months, to discover how this mollusc makes its hole or crypt in the chalk; whether by a chemical solvent, by absorption, by ciliary currents, or by rotatory motion. My observations, dissections, and experiments, set at rest all controversy in my own mind. Between twenty and thirty of the creatures have been at work in lumps of chalk, in sea-water, in a finger-glass and a pan at my window for the last three months. The *Pholas dactylus* makes its hole by grating the chalk with its rasp-like valves, licking it up when pulverized with its foot, forcing it up through its principal or branchial siphon, and squirting it out in oblong nodules. The crypt protects the *Pholas* from *conserve*, which, when they get at it, grow, not merely outside, but even within the lips of the valves, preventing the action of the siphon. In the foot there is a gelatinous spring or style, which, even when taken out, has great elasticity, and which seems the mainspring of the motions of the *Pholas dactylus*.—*John Robertson, 48, Queens Road, Brighton, June 13th, 1851.*

Delayed appearance of the Emperor Moth, (Saturnia Pavonia-minor.)—My brother desires me to say that a chrysalis of the *S. Pavonia-minor*, which he had since the summer before last, gave birth the other day to the Moth: it was a male, but imperfect. The rest of the same year's productions all came out this time last year, as usual: they were both males and females. The specimens were collected on Goatfell, Arran.—*W. Ferguson, (in a letter to the Editor,) Glasgow, May 29th., 1851.*

Review.

Favourite Song Birds, containing a popular description of the Feathered Songsters of Britain, with an account of their habits, haunts, and characteristic traits, interspersed with choice passages from the Poets; and quotations from eminent Naturalists. With twelve coloured illustrations. Edited by H. G. Adams. London: W. S. ORR AND Co., 1851. p. p. 196.

THE little book before us is one of those laudable attempts to popularize Natural History, which we must always hail with pleasure, when, as in the present instance, accuracy is not sacrificed at the shrine of popularity. We believe such sacrifice to be entirely unnecessary, and are convinced that the

certainly of success, in a pecuniary point of view, is in proportion to the truthfulness of the facts related. Simple facts may be clothed in pleasant cheerful language, and we see no reason why the heart should not be touched, and guided into good paths, at the same time that the understanding receives positive information.

For the "Favourite Song Birds," Mr. Adams has culled choice passages both from prose and poetry; the selections are well and judiciously made, and he has woven them together in a very agreeable and *readable* manner. The various little songsters are introduced in such a way as cannot fail to endear them to the reader, and at the same time foster and encourage kind, humane, and religious feelings.

Many extremely interesting anecdotes are given of particular individuals, and in every instance the authority for any fact is named. As the work is rather a selection from the writings of others than an original composition, we content ourselves with quoting from page 55, the following exquisite lines addressed to the "Lark" that "at heaven's gate sings," by James Hogg:—

"Bird of the wilderness,
Blithsome and cumberless,
Light be thy matin o'er moorland and lea;
Emblem of happiness,
Bless'd is thy dwelling-place—
O to abide in the desert with thee!

Wild is thy lay, and loud,
Far in the downy cloud,
Love gives it energy, love gave it birth;
Where on thy dewy wing,
Where art thou journeying?
Thy lay is in heaven, thy love is on earth.

O'er fell and fountain sheen,
O'er moor and mountain green,
O'er the red streamers that herald the day,
Over the cloudlet dim,
Over the rainbow's rim,
Musical cherub, hie, hie thee away!

Then when the gloaming comes,
Low in the heather blooms,
Sweet will thy welcome and bed of love be!
Emblem of happiness,
Bless'd is thy dwelling-place,
O to abide in the desert with thee!

This is a fair sample of the style of the poetic embellishments which are introduced into the "Song Birds," and the general tone of the volume is so good, that we shall be glad to find that the sale of the work equals the wishes and expectations of its Editor.

ZOOLOGICAL NOTES;

BEING SOME REMARKS ON CERTAIN RARITIES
OCCURRING NEAR BANFF.

BY MR. EDWARDS.

THE following interesting remarks were elicited from Mr. Edwards, of Banff, by a request that he would give some information respecting the first-named bird, which was lately taken by Provost Sinclair, in his garden at Cullen; and about the last-named monstrosity—a curious worm, which occurred in the garden of the Rev. Mr. Steinson, of the parish of King-Edward.—*B. R. M.*

I am glad to be able to inform you, that the bird which you sent me for inspection and preservation, is the Black Redstart, (*Phoenicurus tithys*), a bird which has never, as far as I can learn, been previously obtained in Scotland. Instances are on record of their having been found in some of the southern counties of England; and, strange to say, though a summer bird of passage, their occurrence there has either been in the autumn or in winter. But, though they are known to visit Britain occasionally, there is no authenticated account of their ever having bred in the country. They are somewhat plentiful in certain parts of Germany, and are met with in Italy, Greece, and at Gibraltar. They are abundant in Asia; but are not found in America. They frequent rocky and mountainous situations, and old ruins. The egg of this species is of a very pure white, whereas those of the other birds belonging to the same genus are blue. The Common Redstart, which has been known to breed in this locality, is a distinct bird from the one I am speaking of.

The term *Black Redstart*, will perhaps appear to many as rather contradictory and unmeaning. That it does so at first sight, I do not deny; but a little description of the bird itself will best explain the matter. The present specimen, a male, weighs one half ounce; length of bill, half an inch; tail, a little more than three inches; extreme length, five and a half inches, full; chin, throat, breast, and cheeks, up to the eye, black, (this last circumstance, together with the fact of the tail being reddish, has given rise to the English name of the bird—the other syllable, *start*, being an English provincialism for tail;) a narrow band or streak of the same colour passes round the forehead from eye to eye, encircling the base of the upper mandible; passing from the breast along the sides and flank, and on to the abdomen, of a blackish blue; from thence on to the vent, a dull white; top of the head, which is lightest, neck, and back, stretching down to the rump, a pale or dull lead or slate colour. The wing, with the exception about to be stated, is of a dark brown, and about the middle, when closed, a very conspicuous band or strip of white, lengthways, not across, presents itself, in consequence

of the outer webs of the secondaries being of that colour; the tail, which consists of twelve feathers, is, with the exception of the two middle ones, which are much darker than the others, of a rich yellowish brown, or perhaps what some would call a fine bright or reddish chestnut, (hence the term *phœnicura tithys*, from *phoinix*, *phoinikos*—that is, reddish, like the fruit of the date palm when not fully ripened; and *oura*, a tail—that is, *date-red tail*;) and all are more or less marked towards their tips with dark brown; the upper coverts are of the same hue as the tail; the under ones of a brownish white; the tail, when closed, appears slightly forked, from the circumstance of the feathers decreasing in length as they approach the centre; eyes, hazel; bill, legs, toes, and nails, black; the legs are longish, and rather slender than otherwise; in form it a good deal resembles the Wheatear, a bird only known here by the name of Stane-chack, or Chackert.

Though I have said that the present specimen is the first which has been found in Scotland, I do not mean to say by that, that it is the first that ever visited this part of the country. It is quite possible, owing to the neglect, or rather the contempt, in which natural science has been, and is yet, with many, still held in this part of the country, and, I may say, in Scotland, that these birds might have visited us frequently, nay, for ought we know, may even breed, in our mountainous and rocky districts, unknown and unrecorded. I say this from the fact that another, and no doubt a female, was with the one now in my possession at the time it was captured, though it managed to make its escape. However, we are much indebted to the gentleman, through whose kind attention in procuring the present specimen, we are enabled to add another new name to the list of the fauna of our county, and also of laying the details, though humbly, before the public. If other individuals residing in the county, would do as the gentleman in Cullen did, when an opportunity offers, our list would soon increase, and, at the same time, the natural productions of this part of the country would in consequence become better known. I may here remark, that on dissecting the stomach of the bird, I found it to contain a quantity of insects, etc., such as flies and beetles, and the larvæ of an insect, perhaps a bee, the name of which I do not at present recollect. However, I may state, that entomologists may know it, that the perfect insect has a most beautiful glossy pink abdomen, and green thorax and head, and builds its nest of mire and clay, in slight hollows, or corners of stones forming garden and other walls.

On the same notable day, I had two fine specimens of the Waxwing, (*Bombycilla garrula*,) brought me, which had been procured some days previously in our neighbourhood, where, I believe, they have been rather plentiful lately. On the wings of one of these birds, I find that there are seven, and on that of the other, six, carmine or waxen tags; and on the wings of two others which previously passed through my hands, there were on the one six, and on the other only five. How is this? Can ornithologists tell the reason why there should be *seven* on one, and only *five* on another, and both

males.* Again, of the two birds now before me, the tips of the quills of the wings of the one are bordered with white, that is, from the outside margin of the feathers all across their extremities, whereas, the other bird has nothing of that description. I would again ask, how is this? They are both males, yet here is a decided and visible difference. In the stomach of one of the present individuals, the other being entirely empty, I found the remains of a number of insects, chiefly beetles. The stomach of one which I dissected lately, I found crammed with rowans, or the berries of the mountain ash, together with a few seeds of the dog-hip, or the fruit of the common dog-rose, (*Rosa canina*.) From these facts it would appear that these birds live on insects as well as berries and seeds, unless, indeed, the one in question had been driven to it from sheer necessity; but this could hardly be the case, if the weather be taken into account. The term, Bohemian Waxwing, is frequently given to this bird, whereas, in fact, it has no more to do with Bohemia than it has to do with Scotland; perhaps appearing in the latter as frequently as in the former, if not oftener. One of its names in Germany is *Schnee vogel*, which means snow-bird, the belief being, that they visit Germany from some hyperborean region.

Some three weeks ago, I had brought to me a fine specimen of what, (though it is nearly white,) is called the Black Guillemot, in its complete winter dress, which is nearly of a uniform gray colour. By the way, might not this bird, the *Uria grylle*, now in question, be termed the Red-legged Guillemot, as these members do not change their vermilion at any season after maturity? One would then be able, with justice, to call any bird of the species by a suitable title, at whatever period of the year it was presented to him. On Friday, the same remarkable day, I had another specimen sent me from a friend in Fraserburgh, to which I can with all due propriety give the title of Black Guillemot, as it is decidedly of that colour, except the customary almost snow-white patch on the wings, and the bright vermilion red feet and legs. Whilst in this plumage, they are said to be in their summer or nuptial dress. It is stated in works on ornithology, that they change from black to a dull white, the wings excepted, mixed with dark streaks in the end of autumn or beginning of winter, resuming the black colour in spring. Do all Black Guillemots undergo this change? If so, they certainly change from the dress of winter to that of summer with extraordinary rapidity, if I may be allowed to judge from the striking difference between the two birds alluded to, and the short time which elapsed betwixt the first and the present one coming under my notice. Having laid the present specimen, a male, on a table, and having, by accident, looked at it in a slanting direction, I was surprised at observing a beautiful greenish purple-like

*Another specimen, a female, which I have received from Delgaty since writing the above, has also seven waxen tags on the wing. The quills, except the two first, are also bordered with white. The stomach contained some short grass, seeds of the dog-hip, and the remains of insects.

gloss, from the base of the bill downwards, on both back and belly, but which varied, as the view was taken from the one side or the other, producing first the greenish gloss alluded to, then a deep brown, then again it would appear like a piece of black velvet, and when viewed in profile, that portion of the wing from where the white patch terminates, to its extremity, has the appearance of a piece of fine black velvet. Perhaps this is not new to ornithologists, but I have never seen it recorded.

I now come to the last, though not the least remarkable, of the day's arrivals, namely, the curious monstrosity of the Common Earth Worm, (*Lumbricus*), with two tails. This will, no doubt, surprise many, yet the thing is; and no wonder that the good folks of Danshillock remarked that "they never saw the like o't." I doubt it not. It has been to them, perhaps, as it has been to many more, in fact, to all who have as yet seen it, a complete nondescript of its kind. As for myself, I must conscientiously say, that though I have times without number delved in the earth, I never yet met anything of a similar sort. And how am I to describe it? I think I may use the old phrase here to advantage, and say, "That it would puzzle a Philadelphia lawyer to do it justice." However, something must be done, in order that those who may not have an opportunity of seeing the prodigy, may in some measure know what it is like. The animal in its ordinary state, not when at its full stretch, is from seven and a half to eight inches long. At about two, or nearly three inches from the posterior extremity, it branches out in two, thus forming the tails or tags alluded to, and which give it an appearance as if another worm were joined by the middle to its nether end. So far as I have already observed, the double tail is no hinderance to the movements of the animal, either in crawling or in boring into the earth. Each tag has a distinct and perfect extremity of its own, and also moves hither and thither at the will of the possessor, thus shewing that they are in full connexion with the main and principal part of the body. In its motions, the animal assumes many an odd-like figure, and not unfrequently that of a musical fork.

The next question comes to be, is it a new species? or is it only a common Earth Worm, as I have named it at the outset, which has met with an accident that has made it as it is? Whatever others may think, I am inclined to consider it such, and the most natural conclusion, therefore, which can be arrived at is, that it has been cut or rather slit at one time, by some unaccountable means or other, and whilst thus separated, the skin had again united on each part respectively, thus forming the tails in question. But so finely has the work been accomplished, that one would almost conclude that nature had done it herself, and that the worm had been thus produced. But be this as it may, it is a very singular and curious looking object, and certainly, the individual deserves credit who was the means of bringing it to light, for many would have passed it by unheeded, or, if they had noticed it at all, it would only have been to have crushed it to the earth.

THE MISSEL THRUSH, (*TURDUS VISCIVORUS*.)

BY J. MC'INTOSH, ESQ.

THERE is one trait in the character of the Missel Thrush, which is handed down from one ornithologist to another, namely, that it is noisy and pugnacious during incubation, and will then attack other birds without any hesitation that come near its nest; how far this is correct from the observations of others, I will not pretend to say, but I think the following fact—and

“Facts are chiefs that winna ding,
And downa be disputed,”

will modify this established belief. At the present time, there is in my garden at Charminster, Dorset, a yew tree about fifteen feet high, with not a very large head, in which a pair of Missel Thrushes have built their nest, which contains two eggs; exactly one foot by measurement, and in a direct line above, a pair of Common Linnets, (*Linota cannabina*,) have built their nest, which now also contains two eggs. I have watched these birds, (namely, the Missel Thrushes and the Linnets,) with some considerable attention during the operation of building, and must say that between the two the best understanding imaginable has, and still continues to exist. Nor is this the only instance which I have observed and recorded in my note-book, of the quiet behaviour of this bird towards others which build and rear their young near its chosen haunts, to which it will return year after year, even to the self-same tree.

In the defence of its home and young, it is very courageous, like many other birds. We have seen a pair attack the Sparrow Hawk, (*Accipiter nisus*,) and drive him away from the neighbourhood of their nest; but not so with those which build and rear their young near him, as we have above related, in the self-same tree. So much then for the pugnacious propensity of the Gray or Holm Thrush, Throstle Cock, Storm Cock, Screech Thrush, Mistletoe Thrush, Missel Thrush, and lastly, *Turdus viscivorus*. As to their noisy habit, the pair building in my garden, and a pair in my next door neighbour's, have gone on hitherto so quietly, that if they were not seen, no person would know that the birds were in the neighbourhood. That they are noisy at times, we admit, but it is not so general a failing as some writers would lead us to believe. It commences its song early in January in the southern counties, and February and beginning of March in the more northern. Although not so thrilling as the other *Merulidæ*, still it has indescribable charms to the ornithologist, and is thus described by Charlotte Smith:—

“Oh, herald of the spring! while yet
No harebell scents the woodland lane,
No starwort fair, nor violet
Braves the bleak gust and driving rain,

'Tis thine, as through the coppice rude,
 Some pensive wanderer sighs along,
 To sooth him with a cheerful song,
 And tell of hope and fortitude."

Charminster, Dorset, April 29th, 1851.

THE HOUSE-SPARROW A FIRST-RATE MUSICIAN.

BY W. KIDD, ESQ.

It has been said, and proved to be a truth, that "use is second nature:" in proof of this let me propound an astounding theory, which it is in the power of any, or all, of your readers, to reduce to immediate practice; indeed the experiment is an interesting one, and paves the way for still more wonderful domestic discoveries. Let a nest of young House-Sparrows be procured, when about four days old; being the hardiest of our hardy birds, there will be no difficulty in rearing them. They should be fed in the usual way, with the end of a short, pointed stick, and when able to feed themselves, they should be separately caged off. The object of taking them at so early a period, is to prevent the possibility of their hearing and *imitating* the voice of their parents. I assume, of course, that they are, like all other birds, open to the very earliest impressions, and these, as we all know, become indelibly fixed. The next step is to provide a first-rate Canary in full song, and to keep him, and him only, in the room with the Sparrows, not permitting the voice of *any other bird* to be heard in the house. Now watch the result: in less than three weeks the cocks will commence "recording," and you will find every note they utter, peculiar to the Canary *only*. If carefully tended, and this experiment be fairly tried, it will be difficult, in a short time, to distinguish the voice of the pupil from that of his master. A little reasoning—and no person will ever read "The Naturalist" who is *not* fond of reasoning—will shew the "why and because" of this result. I shall be glad to see many instances of "success" with this experiment recorded in your interesting pages.

Hammersmith, June 6th., 1851.

REMARKS ON TRICHIOSOMA LUCORUM.

BY RICHARD MAYSMOR, ESQ.

PROBABLY all the readers of "The Naturalist" may not have observed the cocoons of one of our largest Saw-flies, (*Trichiosoma lucorum*), glued to twigs upon the hedges; braving the storms of winter, and the heat of summer; if not, it is because they have never carefully looked for them during the winter months, when the hedges are stripped of their leaves. Although they are common here, I never noticed them till the middle of March, in the present

year, when I collected several, but even so early in the season I found nearly all the last year's cocoons empty, the insect having taken its departure, leaving its cast skin generally sticking in the hole through which it had made its exit; and what is remarkable, is that the exuviae have been invariably left with the head part in the interior of the cocoons, whilst the posterior part has been drawn partly out of them; from this circumstance I was at first inclined to think that the insects made their exit backwards, but such is not the case. The cocoons which were thus uninhabited by the middle of March, have a small *irregular* opening at one end, the position not being constant. I am inclined to think these belong to the male fly, for reasons to be hereafter stated. At present I will briefly describe the cocoons, which have all a uniform appearance: they are three-quarters of an inch long, and a quarter of an inch in diameter, rounded at each end, of a brown colour, and generally attached the whole length to a slender twig. I have found them only upon hawthorn, the bark of which they much resemble in colour, so that they are not easily seen in a hedge; they are of a leathery texture, quite impervious to water; and before the Fly escapes there is not the slightest hole in the cocoons. Internally they are of a beautiful bronze-colour, and are of such a texture as to withstand the weather for years. There certainly appears no provision for a supply of air to the insect during its pupa state, or during its change to a perfect fly. I should be glad if any of the readers of "The Naturalist" would give me information on this point, or on any other connected with this subject. The cocoon is the most perfect and secure piece of insect architecture with which I am acquainted, if it can be said that one thing is better than another in the works of nature, where all are equally perfect.

I have sometimes found the bark eaten from the twig near the place of attachment of the cocoon, as if the grub had taken a feed just before entering upon its long fast. Occasionally the insect is doomed never to emerge from its secure dwelling, having been selected, before fabricating it, by some anxious Ichneumon fly, as a fitting subject for a place of deposit for her eggs, whose larvæ, when hatched, eat up gradually the fabricator of the cocoon, and then make their escape through small circular holes in the cocoon made by themselves after they have changed into the imago state; it takes them a considerable time to cut these holes, and they have to return to the work very frequently before they are large enough to let them out. They try the capacity of these holes often, not wishing to make them larger than is really necessary, as the task of gnawing these cocoons with their little mandibles is a difficult one. I have one cocoon which has six of these small holes in it, containing the remains of the victimized Saw-fly. Of the Saw-flies which open the cocoons in the irregular ragged way, I know nothing, as they had all taken their departure by the middle of March, when I first collected the cocoons. I presume they are males, and that they make their escape about a month earlier than the females. I have observed the escape of several females, and I see they all cut a *circular* piece out of one end of the cocoon,

so that it merely hangs by a little hinge; this they perform with their mandibles, (which are very strong, sickle-shaped, with two small teeth,) as true as it could be done with a pen-knife: it requires about two hours work. In one instance the fly made a slight error in judgment, for when it had cut out the piece the hole was too small, and after several vain attempts to get out, it began and cut off a thin strip round the hole, which made it large enough. I believe when they begin to work they soften the wall of the cocoon with an acid, for, as soon as their mandibles get through, a little liquid oozes through the opening, which has a very powerful smell.

My first flies came out on 12th. April, the day after I placed them in a sunny window, and they became very active; I put them upon some hawthorn leaves, but without any idea that I should soon have the pleasure of a sight which I think but few have witnessed, namely, the act of ovipositing. I was able to afford some friends a view of the operation, who declared it to be one of the most beautiful sights they ever saw, and these parties are conversant with the wonders of the microscope. A fly would continue to oviposit, at intervals, for three or four hours, and was so intent upon it that I could turn the leaves about so as to be able to see the whole operation distinctly with a Coddington lens. It would seem that, although there may be no connexion with the male fly, the desire of propagating the species is equally strong. When a fly has the desire to oviposit, and is placed upon some hawthorn leaves, (for I find she will use no other leaves, the ovipositor perhaps not being adapted for them, and the fly's instinct telling her that the food is not suitable for her progeny,) she becomes restless, running rapidly over the leaves with her antennæ lowered in front, till she finds a leaf in a favourable position; she then gets to the edge of it, begins to pierce the leaf, and inserts the ovipositor and sheath under the cuticle, working the saws rapidly, so as to raise the cuticle from the parenchyma, till the ovipositor is wholly extruded: when it is withdrawn a fluid is injected into the small space where it has worked, which makes the leaf have the appearance of a little blister upon it. The cuticle is so very transparent that at a little distance the ovipositor absolutely appears to be on the outside of the leaf. I found, with gathered leaves, that the fly would use either side. The operation takes about three minutes, during which time the fly lowers her antennæ in front, and the posterior segments of the abdomen have a slight tremulous motion. The ovipositor is composed of two beautiful saws, slightly turned at the ends, which work in the sheath: this is a case which opens all its length on its top side, and about half its length from the end on the lower side, but joined towards the base, so that at the end it opens as if it was a spring.

As regards the changes of the insects, I can only say that in the middle of March I cut open a cocoon, and the occupant was then only a common-looking grub; in a month after it cut its way out, and came forth a perfect fly. It would be called a bee by persons not conversant with the insect,

the only apparent singularity about it being its antennæ, which are clubbed at the ends. The cast skin of these flies is placed in the cocoons, even before the insects have left, in a singular position, the head being where the insect lies with its posterior part, so that one would be led to imagine that the insect had *turned round* in the cocoon after casting its skin, but this cannot be. I hope to obtain information on this point through the pages of "The Naturalist."

Devizes, June 28th., 1851.

ON ODOSTOMIA TRUNCATULA.

BY H. R. BOLTON, ESQ.

My spare hours for the last two years have been much occupied in collecting the land, fresh-water, and sea shells of this neighbourhood, and, as far as I am capable, of studying their habits. Permit me therefore to say, that if a few observations, the result of my experience, occasionally contributed to your pleasing magazine, be at all interesting to the conchologists of other localities, I shall feel much pleasure in affording them.

I find many here that have escaped the notice, or have not been enumerated, by Montagu, Turton, and others, in their accounts of the shells found in Devon and Cornwall. One has been recently discovered which I have never seen described among our British shells, *Odostomia truncatula*, of which I send you herewith a card of specimens. It is found in Plymouth Sound, about two miles from the shore, while dredging among the sand, in rather deep water; and was first observed by a friend of mine, of much practical and scientific knowledge, Mr. Rouse, of Plymouth. The shell consists of six clearly-defined volutions. Mouth, small, oval-oblong; outer margin, thin, not reflected nor forming an umbilicus; apex, blunt or truncated; colour, white, covered with a thin amber-brown epidermis; shell, a quarter of an inch in length, and in form resembling the *Bulimus*.

If you have not yet been supplied with a list of the shells of Devon, I shall be most happy in forwarding you one made from my own collection. They are much more numerous, particularly the minute shells, than has been generally noticed by those who have written on the subject.

Plymouth, 16, Albert Street, June 14th., 1851.

We are much indebted to Mr. Bolton for a very fine series of this interesting shell, which is a recent addition to the British Fauna, being first recorded in "The Annals of Natural History," for 1850, and since introduced into the beautiful work on the British Mollusca, by Professor Forbes and Mr. Hanley, now publishing.—*B. R. M.*

THE MISSELTOE, (*VISCUM ALBUM*.)

BY J. MC'INTOSH, ESQ.

HISTORIANS inform us that the Druids esteemed nothing more sacred than the Misseltoe, and it is well-known that they delighted in groves of Oaks, and performed no sacred rite without branches of the monarch of the forest, and from hence seems to be derived their name of Druids; they considered that whatever grew upon the Oak was sent from heaven, and as a sign that the tree was the chosen one of God himself. The Misseltoe was very difficult to be found, even by the Druids, on the Oak, and when so discovered, was gathered with the most pompous religious ceremonies, particularly at the sixth day of the moon, because that orb of night was then supposed to possess extraordinary powers. The sacrifice and feast being duly prepared under the tree, they led thither two white bulls, whose horns were bound for the first time. It is a singular coincidence of circumstances, that bulls perfectly white were sacrificed by the Egyptians to Apis: when such an animal was found unblemished, and without a single black hair, the priest laid a fillet about his horns, and sealed it with the signet of his ring; it being a capital crime to sacrifice one of these animals except it was thus marked, (see Herodotus.) The priest, clothed in a white vestment, ascending the tree, cut off the Misseltoe with a golden bill, and received it in a white cloth, on the ground. It was then dipped in water by the chief Druid, and then distributed amongst the people, as a preservative against witchcraft and disease. They then slew the victims, invoking the favour of the Deity on the offering. When the sacrifice was over, the berries of this plant were taken by the ovate, the physicians of the tribe, and converted to medical purposes. Sir John Colbach published a dissertation, in 1720, on the efficacy of the Misseltoe against sundry diseases of the nervous system; and it would appear from the directions given by Sir John, that it was to him a common occurrence to find the Misseltoe growing on the Oak. Even in the present time, in country places, it is supposed to cure diseases, etc., in cattle; and it has been stated, that if eaten in a dried state by cows in calf, it will cause abortion; we have heard a farmer assert that he lost ten calves from his cows having eaten of some dried Misseltoe, which had been thrown into the yard, from the house, by the servants. It is in some respects with medicine as it is with fashions, what is deemed of high value in one age, is discontinued in the next; such is the fate of the Misseltoe; but to our subject: it was known to the Greeks and Romans, who valued it chiefly for its medicinal qualities, and more especially as an antidote to poisons. The Persian magi gathered the Misseltoe with great care, and used it in their religious ceremonies.

It has been supposed by some writers, to have been the forbidden tree in the garden of Eden; for or against this opinion, at this distance of time, we can say nothing. In the feudal ages it was gathered with great solemnity

on Christmas eve, and hung up in the great hall with shouts and rejoicings; this, as it is well known, is still performed—

“On Christmas eve the bells were rung,
On Christmas eve the mass was sung;
That only night in all the year
Saw the stoleed priest the chalice rear;
The damsel donned her kirtle sheen,
The hall was dressed with holly green,
Forth to the woods did the merry men go
To gather in the Misseltoe,
Then opened wide the baron’s hall,
To vassal, tenant, serf, and all.”

This curious parasitical shrub is found throughout Europe, and the colder regions of Asia. There are, however, various other species, to the number of seventy-six, which have been described by botanists, (see Don’s Mill,) but the White-fruited, or Common Misseltoe is the only one found in England; in some counties it is rather plentiful, as Staffordshire, Herefordshire, and Monmouthshire, in which county we are informed that it is to be found on more than one Oak, while it is rather of a rare occurrence in others. It is probable that it grew in the Oak woods of Snowdon, before the damp western parts of Britain were disforested. It has been discovered in Scotland, though it cannot be considered as a truly indigenous plant to that country, or to Ireland, where it is now found growing by cultivation, which is a very simple process; and there is no person in England possessed of a garden with an *Apple tree* or *White-thorn*, but what may possess plants of this parasite.

We shall now enumerate the trees on which it has been found in this country and on the Continent; at the same time we shall feel extremely obliged if any correspondent of “The Naturalist” will record in its pages any trees, *but particularly the Oak*, on which they have seen it grow, also the county: in the meantime I give the following:—

ON THE OAK, (*Quercus L.*)

- 1 Ponporthlenny, } Monmouthshire.
- 2 Usk, }
- 3 Anglesea. It occurs hanging almost over a grand Druidical Cromlech in the park of the (then) Lord Uxbridge.
- 4 Frampton-on-Severn. This Oak tree is said to be upwards of a century old.
- 5 Ledbury Park, Chepstow. This tree is stated by its noble owner to be upwards of seventy years old.
- 6 Mr. Beaton records an Oak near Ledbury, which he says was cut down in 1831.
- 7 Castnor Castle, near Malvern. This is said to be a fine example.
- 8 In 1765, it was found growing on an Oak on the estate of — White, Esq., Watling Wells.

The above are the only recorded Oaks on which it has been found growing

naturally, as far as I am aware, and I have availed myself of numerous authorities for the same: that there may be found others, I have no doubt, and I hope this article will be the means of inducing some of your numerous correspondents, particularly your Herefordshire ones, to record them in the pages of "The Naturalist." I am well aware that it is to be found growing artificially on the Oak. Mr. Beaton caused it, as we have done ourselves, to grow on the Oak; the manner of so doing we shall notice.

THE LIME TREE, (*Tilia*, *L.*)

- 1 East Tytherley. There is a tree beautifully studded with it.
- 2 Home Park, Windsor. The noble Lime trees are covered.
- 3 Penhurst Park, Kent. There are fine specimens, which at a distance are said to resemble a rookery.
- 4 The avenue of Hampton Court, has some fine specimens.
- 5 At Bushy Park, Ditto.
- 6 Sutton Place, Surrey. The late Mr. Loudon says that in 1831, the Lime trees at this place were eaten up with this parasite.
- 7 Shardeloes, Buckinghamshire.

The above seven are the only recorded Lime trees on which I am aware that this parasite is found; of course there are many others.

THE MAPLE, (*Acer*, *L.*)

It is found on the Maple in Yorkshire and Huntingdonshire; the names of the places we shall feel obliged for.

THE COMMON ASH, (*Fraxinus*, *L.*)

I am not aware that there is, or has been more than one recorded instance of this parasite growing on the Common Ash, which is said to be at Tinley Park, Hampshire. I hope some of your Hampshire correspondents will be kind enough to record any.

THE POPLAR, (*Populus*, *L.*)

- 1 Ashton, near Rotherham.
- 2 Sutton Place, Surrey. Loudon remarks that the trees were eaten up with it. It has been found on both the Black and White, as also the Lombardy Poplars.

THE ELM, (*Ulmus*, *L.*)

It has been recorded to have been found on the Elm, and if we mistake not, in Kent. We shall be much obliged for any notice of it on this tree. We have a note of its being either found in Lancashire or Westmorland.

THE APPLE (*Pyrus malus*, *L.*)

It is common on this tree in various parts of England, particularly in the orchard counties. The examples of it on this tree are too numerous to record here. If there is a county in England or Wales in which it is not found growing on the Apple, it would be well to record the same.

THE COMMON HAWTHORN, (*Cratægus*, *L.*)

It is also common on this plant. We ask the same query as above.

THE WHITE BEAM TREE, (*Pyrus Aria Ehrh.*)

It has been found growing on this tree on the Sussex Downs.

THE SERVICE TREE, (*Pyrus Sorbus Gae.*)

It has been found growing on this tree, but the names of the exact localities are not stated, but we think Lancashire.

THE WILLOW, (*Salix, L.*)

It has been found growing on the Willow in many parts of England; we have seen it in several instances in Dorset. This is one of the common trees on which this parasite is to be found.

THE BUCKTHORN, (*Rhamnus, L.*)

We have a recorded instance of its having been found on this tree, in 1764, both in Westmorland and Lancashire.

THE NUT TREE, (*Corylus, L.*)

It has been found growing on the Common Nut and Filbert, but we rather imagine these to have been grafted by the hand of man.

THE ROBINIA, (*R. Pseudacacia, L.*)

It has been found growing on this tree, but the exact places are not recorded.

THE CHERRY LAUREL, (*Cerasus, L.*)

It has been found growing on the Common Laurel, Common Cherry, and Bird Cherry.

THE HOLLY, (*Ilex, L.*)

It has been recorded to have grown on this tree, which we imagine to have been a grafted specimen, as there is no recorded instance in a state of nature, (what is here meant by nature is the woods and wild places.) That it will grow on the Holly we are well aware, having caused it to do so ourselves.

THE MOUNTAIN ASH, (*Pyrus aucuparia.*)

It has been found growing on this tree.

THE WALNUT, (*Juglans, L.*)

We have a recorded instance of its having grown in a garden in Cheapside, in the year 1764, on this tree, and we believe it to be the only instance on record of its being made to grow on the Walnut.

On the Continent we have the following recorded instances of its occurrence on the following trees:—On the Oak, at Lobsens, in the Duchy of Posen. Berlin, a Mr. Brachenridze found it growing on several Oak trees. In France it is of rare occurrence to find it on the Oak, yet it abounds on the Almond, (*Amygdalus Tou.*) In Spain, and near to Jerusalem, on the Olive, (*Olea, L.*) At Schuitzingen, on the Poplar; at Strasburgh, on the Lime Tree; at Carlsruhe, and in the neighbourhood of Magdeburgh, it is found in immense quantities on the *Pinus sylvestris*, or Scotch Pine. We are not aware of its ever having been found on any of the *Coniferae* in England. Here, thus we have no less than twenty-two recorded trees on which this interesting parasite has been found growing or caused to grow; and, as we have before observed, we

shall be thankful for any further information on this subject through the pages of "The Naturalist."

The propagation of this parasite is by seeds, the most common, and by grafts. It is generally supposed, and with truth, that it is propagated in a state of nature by birds, particularly the Missel Thrush, which, after having satisfied itself by eating the berries, wipes off such as may adhere to its bill against the bark of the tree on which it may alight, and also from the excrements of these birds, seeds out of which, we have, on more occasions than one, caused to grow, although doubted by some botanists. If the seeds are rubbed on the bark of the tree selected, it will soon germinate, particularly on the Apple and Thorn. Du. Hamel made them sprout not only on living trees, but on dead branches, bricks, tiles, stones, and in the ground; but, though they germinated, they did not live long, except those on the bark of living trees; and Du. Trochet caused the seeds to germinate on the frame of a window, but they soon died. The roots of the Misseltoe, which penetrate the bark, extend themselves between the inner bark and the soft wood, where the sap is most abundant, but never, as some have supposed, into the hard wood. The two modes of propagation, budding and grafting, are very simple; merely make an incision in the bark, in which insert a thin slice of Misseltoe, having a bud and a leaf at the end: the middle of May is the best time for this operation. It is now high time I should conclude this lengthy article, but, perhaps may, some day ere long, resume the subject again.

Charminster, Dorset, July 5th., 1851

ON MAKING DEEP CELLS FOR MICROSCOPIC OBJECTS.

BY J. S. C.

THE usual methods of preparing deep cells for mounting microscopic objects being both tedious and difficult, a description of a speedier method which I have adopted, sufficiently long, I consider, fully to test its efficiency, may possibly be acceptable to such of your readers as are microscopists. It consists in the employment of small circular bands of vulcanized India-rubber, about seven-tenths of an inch in diameter, (and which may be obtained of the required size and thickness through any stationer,) cemented to the glass slide with gold-size, which may also be used for putting on the thin glass covers. For this latter purpose, however, it is necessary that the gold-size be very old, about the consistence of treacle, otherwise it is apt to run in, and form a thin pellicle over the surface of the contained fluid. When become too thick for use, gold-size may be reduced by the addition of spirits of turpentine. But, perhaps, the best material for closing the cells, is a solution of shellac in rectified spirits of wine: a very thin coating of this should be laid on the surface of the vulcanized band, as also upon the glass cover; the cover may then be laid on at one edge and gradually pressed down, so as to express

the superfluous fluid. This cement will 'set' in about half-an-hour, and may then be covered with a coating of gold-size or other varnish, and the cell is rendered permanent.

The principal advantages of these cells consist in the quickness and little trouble with which they may be prepared, and their being unaffected by changes of temperature. The elasticity of the band, when very thick, may, perhaps, render the fluid likely to be forced out by compression, but, I believe this would not occur with a less pressure than would suffice to destroy the covering of an ordinary cell, whilst it renders these cells secure from injury by slighter concussions, which so frequently damage cells constructed in the usual way.

The vulcanized India-rubber may also be procured in sheets, and cut to the required size with a sharp penknife, if square cells be preferred.

Miscellaneous Notices.

Sparrow-Hawk, (*Falco nisus*.)—A very remarkable instance of the voracity of the Sparrow-Hawk occurred in this neighbourhood a few years since, which would appear almost incredible had not similar accounts been authenticated by various writers, and recently by A. E. Knox, Esq., in "Ornithological Rambles in Sussex," which leave no doubt on the matter. A pair of these birds bred in Losear wood, about a mile from this place: not very long after the young were hatched, the gamekeeper found around and near the nest, no less than between fifty and sixty head of game, the greater part in a perfectly fresh state, consisting of young Pheasants and Partridges, which were all stripped of their feathers, and, strange to say, *Rabbits and Hares*, which had doubtless been obtained very near the nest, the Sparrow-Hawk, as mentioned in "British Birds," page 147, not generally feeding on quadrupeds. They were of course young ones.—S. HANNAFORD, JUN., Kiveton Park, March 29th., 1851.

Tawny Owl, (*Strix stridula*.)—A pair of these birds bred last summer in Thorpe wood, on the Duke of Leeds' estate. The old birds kept their young well supplied with Rabbits, which were hung, one at a time, on a branch of a tree near the nest, so as to be within their reach. On March 25th., I got a very fine pair in this wood; the hen was sitting in a hollow of an old tree, several feet down, on one egg, which was laid on a lot of old dried leaves and rubbish.—Idem.

Kingfisher, (*Alcedo ispida*.)—A relative of mine was fishing in Folly Copse, on the Dart, near Totnes, Devon, last year, with a cow-dung maggot, or bob, and a Kingfisher made many attempts to seize the bait, by darting at it from a hole in the bank.—Idem.

Jackdaw, (*Corvus monedula*.)—A very curious specimen was shot by a friend, near Worksop, Notts., about a month since. The head was rather lighter than is usual; the back, breast, lesser coverts, and scapulars spotted pretty thickly with white spots; two or three of the tail feathers, perfectly white.—Idem.

Great Spotted Woodpecker, (*Picus Major*.)—A very fine specimen, a male, was shot at High-ground, near Worksop, Notts., by William Robinson, Esq. There was a bird in company with the one shot, the plumage similar, but nearly as large again, about the size of a Fieldfare.—Idem.

Nest of the House Pigeon.—Your correspondent, S. Hannaford, Esq., Jun., has anticipated me on this subject. Vide page 23, of "The Naturalist." However, I cannot refrain from confirming what that gentleman has stated, by asserting, from repeated observations, that the common House Pigeon prefers twigs or small branches to straws, and I have repeatedly watched them break small twigs from off *elm* and *beech trees*. As this is another disputed point in ornithology, I hope there are others of your correspondents who may be able to add, or otherwise, to these remarks.—J. MCINTOSH, Charminster, Dorset, April 12th., 1851.

Peafowl, (*Pavo cristatus*)—It is supposed by many—and amongst the many, some scientific Naturalists—that the *white variety* of this bird, which is so frequently seen about gentlemen's houses, is not of the same stock as the common. Having had a considerable number of these elegant birds, I assert, without fear of contradiction, that the *white variety* is one and the same with the more common, both being reared by the same birds. They are more delicate than the common, and form a beautiful addition to a gentleman's grounds.—Idem.

We believe it is always the case that Albinos, or animals in which the *pigmentum nigrum* is deficient, are more delicate than those with the natural colours. We have no doubt that our correspondent is correct in his statement, as to the White Peafowl being only a delicate variety of the common.—B. R. M.

Anecdote of a Blackbird.—A young lady residing in Banff, who has a love for flowers, had, in the spring of 1849, in a portion of a garden set apart for that purpose, planted a selection of choice annuals. As is customary in flower plots, a small stick or pin was stuck into the earth, to mark where each species was planted; and in the top of these sticks were introduced, by means of a slit being made, slips of paper inscribed with the name of the plant. Now, it would most naturally appear that these tickets or slips of paper could be of no use to any party; yet, much to the surprise of the lady, a few of them, day after day, most miraculously disappeared, leaving the empty sticks to tell that they were gone. What added to the mystery was, that some were left here and there, which seemed to indicate that the thief did not wish to take them away indiscriminately, so as to strip all the sticks bare in one place. It was very marvellous, the lady thought, and wondered if it was a trick any one was playing. Her brother, with whom she lived, was informed of the circumstance, but he knew nothing of the matter; the servants were next questioned, but they too knew as little, and had seen no one near the place but the lady herself. Days passed away, and still the tickets were disappearing, to the no small surprise of all in the house, for now all were on the alert to detect, if possible, the supposed fairy or fairies who were playing their pranks with the tickets, but their watchfulness seemed to no purpose. After a long interval, however, old Father Time at last unveiled the whole affair. The lady, rising one morning rather earlier than usual, and having gone to her bed-chamber window, which looked into the garden, to ascertain the state of the weather, observed a Blackbird hopping amongst her now almost ticketless bed of annuals. At this she was not at all surprised, because birds were numerous in the garden, being, indeed, encouraged to come there. But judge her astonishment when she beheld Blackie seize a hold of one of the remaining tickets with her bill, and tug lustily to get it disengaged from the stick, but failed in doing so; the stick, like an honest servant, would not give up its charge. (This may explain why one was left here and there, as already alluded to.) But the bird, not to be beaten, tried another, and succeeded, and, flying away, disappeared with the prize among the branches of a pear tree farther up the garden. The secret was now out; for the lady, going into the garden to the pear tree, was most agreeably surprised at seeing in a cavity, all her lost tickets in the form of a Blackbird's nest. Being an admirer of the sweet and melodious, as well as a lover of the beautiful and fragrant gems of nature, the nest was allowed to remain unmolested, in the hope that the sable builders might be enabled to rear a brood of young in the tenement so strangely constructed. But, unfortunately, this was not to be, for a severe storm coming on before the nest was completed, caused it to give way and fall to the ground.—THOMAS EDWARDS, Banff, June 11th., 1851.

A specimen of the Snow Bunting, which has been presented to me by Mr. John Dickson, of this place, was shot near Scarbro', on the 26th. of March last.—F. O. MORRIS, Nafferton Vicarage, Driffield, July 1st., 1851.

The Thrush.—A person in this town, named Rothwell, with whom I am acquainted, has had a fine cock Thrush in his possession for about two years. It was a nestling when he obtained it. About ten days ago, he got a nest of five young Throstles, which he purposed rearing by hand, and had so fed them in the sight of the old bird for a day or two, when he observed that it appeared a good deal interested in the young brood, and was flying about the cage with food in its bill; at the suggestion of a person who saw this, he put the whole of the birds in one cage, and, strange to say, the old bird has continued to feed the young ones ever since. If a morsel of raw meat be placed on the cage, he immediately seizes it, and then, anxiously

looking round, the first mouth that opens receives it. About a week after the birds had been together, one of them, which had been in a weak condition from the first, died, and its place was supplied by another young bird of the same description; this did not seem to relish the introduction at first, but gradually fell into the ranks with the others, and this afternoon I saw the whole of the birds in turn get fed as I have described.—J. A. ROBINSON, Southport, Lancashire, May 8th., 1851.

Note on a Black Cock.—On Sunday morning, the 20th. of April, a Black Cock was captured by Hale, an under keeper of Lord Broughton de Gyfford's, on Urchfont Down, near Devizes, Wilts. The bird is living, and in the possession of Thomas Noyes Lewis, Esq., of Wedhampton Cottage, near Devizes. The circumstance is remarkable, as we are not aware that Black Game is found nearer than the New Forest, Hants, or some parts of Somersetshire.—From the *Morning Herald*.

European Hoopoe.—In the early part of this month, April, a fine specimen of that rare and elegant bird, the Hoopoe, (*Upupa epops*,) was shot near Farrington, by Mr. Chas. Reynolds.--R. MAYSMOR, Devizes, April 29th., 1851.

Courage exhibited by a Hen, in defence of her brood.—On Sunday morning last, a large Rat attacked a brood of Chickens in the poultry-yard of W. Holdsworth, Esq., when the Hen most valiantly defended her offspring, and successfully kept the Rat at bay, inflicting considerable punishment. The Cock then came to the Hen's assistance, and by their united efforts succeeded in giving the rapacious intruder its quietus.--Nottingham Mercury. In Sun of March 29th., 1851.

On the occurrence of eight Night-Herons on the River Erme, Devon, in May, 1849.—Although the occurrence of these birds was recorded at the time, by my friend, the Rev. C. Bulteel, in "The Zoologist," and elsewhere, still, as some of your already very numerous supporters may not have seen it, and as I think I can add a little information on the subject, I forward you a copy of the circumstance from my note-book:—On the 23rd. of May, 1849, as the Rev. C. Bulteel was fishing near the mouth of the River Erme, he was informed by the gamekeeper of Flete, that a curious bird had just been seen near that spot; Mr. Bulteel immediately procured a gun, and went in pursuit of it, and out of a small alder-bed, flushed four Night-Herons, which, within the three following days, he was so fortunate as to obtain, besides a pair more in a neighbouring creek. He informs me they very frequently perched among the foliage of tall trees, as though to screen themselves from observation, and, occasionally, on dead branches in a conspicuous situation, when they sat with their necks erect, keeping a sharp look out. After this occurrence, a solitary bird was frequently seen flying up and down the river, late on evenings, and early mornings, until June 22nd., when I accompanied Mr. Bulteel, and was so fortunate as to obtain it, and it proved to be a fine adult male bird; and on the afternoon of the same day he shot a female, which I brushed out with my gun from a low, thick, alder-bush, just above Ermington. The male had a favourite haunt in a thicket of sycamore bushes, about twelve feet in height, on the banks of the river, to which, though repeatedly disturbed, it constantly returned. It flew with its head close down upon its back, no neck being perceptible, somewhat quicker, but otherwise similar to the Common Heron. Out of these two, which I dissected, I took both the bones of small fish and eels, and there was the slime of the latter about their beaks. They each had three streamers, (elongated narrow feathers arising from the occiput, and gracefully arched over the back,) which, when the bird was alive, rested on one another, appearing only as one: those in the females were three inches, and in the males six inches in length, and the former also differed from the latter in being slightly more ash-coloured about the sides of the neck and wings. The irides were reddish lake, the lore, dark green, and the legs straw-colour.--R. A. JULIAN, JUN., Lara House, Plymouth, July 1851.

Occurrence of the Little Spotted Woodpecker, (Picus minor.)—On April 22nd., 1851, I obtained an adult male Little Spotted Woodpecker, on some tall trees on the banks of the River Erme, near Ermington.--Idem.

Occurrence of the Continental Pied Wagtail.—On April 24th, 1851, I was so fortunate as to obtain in the marshes at Lara, a fine specimen of the Continental Pied Wagtail, with a beautiful slate-coloured back. On comparing it with a skin of one I had given me, shot last month at Saumur, France, it agreed with it in every respect. It appeared very uneasy, and

first attracted my attention by its note, which was sharper, and very distinct from that of the Common English Pied Wagtail, (*Motacilla Yarellii*).--Idem.

Note on the Cuckoo, (*Cuculus canorus*).--Going across Hale common, near Altrincham, one day, I was startled by the dash of a bird from a bush near to where I was walking; I immediately commenced searching the bush and found the nest of a Titlark, with, I believe, five eggs. On my next visit, I was surprised to find the eggs lying on the ground, and looking into the nest, I observed an egg of some strange bird, which I afterwards ascertained to be that of the Cuckoo. I put the eggs into the nest several times, but they were always rolled out again. I am at a loss to know how the young Cuckoo was hatched, for I never saw any bird about the nest after it was taken possession of by the Cuckoo.--P. BALSHAW, Stockport, May 9th., 1851.

I saw a solitary Swallow, (*H. rustica*), on the 24th. of April, but on the 26th. I saw a large flock.--P. B.

Observations on the Cuckoo, (*Cuculus canorus*).--On the morning of the 14th. of April, a friend and I were out shooting for the purpose of obtaining specimens in ornithology. Having arrived at a point of the River, called the Alder Carr, situated midway between Norwich and Thorpe, I heard from an adjoining tree the well-known note of the Cuckoo, which I observed perched at the distance of twenty yards. I was about to fire, when over my head sailed another with something between its mandibles; my curiosity was excited, (leaving the other to speed its way,) I followed in a boat the flying Cuckoo, which I saw alight in an adjoining meadow. I reached the bird within twenty yards, and observed it in the act of progressing, (similar to the crawling of a Parrot,) by the side of a drain with this substance still in its beak; after traversing some distance, it stopped short, at the same time I fired. Upon nearing it I found the substance before-named to be its egg, I am sorry to say broken, but still quite satisfactory to me that such was the case. Upon dissection, I found the cloaca contained another egg of nearly the same size, but minus the calcareous envelope. I think in all probability this bird was searching for a nest, possibly that of the Meadow Pipit, (*Anthus pratensis*), for the depositing of its egg.--J. O. HARPER, Norwich, May 7th., 1851.

On the number of eggs laid by the Cuckoo.---A correspondent of yours, (J. Mc'Intosh, Esq.,) in No. 1, of "The Naturalist," in writing on the habits of the Cuckoo, says, "This proves further to me, that the Cuckoo lays but one egg; at least this one could have laid no more." The following extract from some ornithological memoranda of the late Col. Montagu, in my possession, may not be unacceptable, shewing, as it does, that nature has certainly made more ample provision for the perpetuation of the species:--"May 17th., 1802. A female Cuckoo we dissected weighed three ounces and three quarters. The ovaries and uterus were vastly distended, but we think no egg had been produced. The largest vitellus appeared to be of sufficient size to separate from the ovarium, but it was still attached; the next egg in succession was not one quarter so large; the third and fourth nearly of the same size, not above half as big as the second; two others rather inferior, and a seventh not half so large as those. These may be considered as the portion of eggs destined to be produced within the season, that is between the above period and the beginning of July, the smaller eggs being scarcely definable." "This bird, as well as all the summer migrants, was unusually late this year." "The female here described, had the stomach distended with the hairs and other exuvie of some species of caterpillar, or larva of some lepidopterous insect."--H. DORVILLE, Alphington, near Exeter, May 14th., 1851.

On the Cuckoo conveying its egg in its mouth.--On returning to Cambridge last October, (1850,) I was informed by G. Carter, Esq., of Emanuel College, that a Cuckoo had deposited an egg in a Wren's nest, in the Fellows' garden, and that the young bird was eventually shot by him and given to F. Barlow, Esq., Solicitor, Cambridge, in whose collection it now remains. The Wrens were also seen to feed it by several of the Fellows of the College. Mr. Barlow also informs me that, many years ago, he found a Cuckoo's egg in a Redstart's nest in a hole in an old willow-pollard, and he had great difficulty in getting the egg out, the aperture being but just sufficient to admit two of his fingers.--R. A. JULIAN, JUN.

Heronries additional.--Powderham Castle, near Exeter; Warleigh, on the Tamar. Single pairs build in the woods near Totnes.--S. HANNAFORD, JUN.

Heronries.--To the list given at page 60, may be added the following existing in South Wales:--Margam Abbey, Glamorganshire; Penrice Castle, Glamorganshire.--R. WILBRAHAM FALCONER, M. D. Bath.

Heronries.--In addition to those mentioned by J. Mc'Intosh, Esq., in "The Naturalist" for May, there is one still in existence in Wanstead Park, Essex.--H. J. C.

The Grasshopper Warbler, (*Salicaria locustella*), near Falmouth.--A beautiful specimen of this bird was shot last week on the Furze common, Pendennis Castle, by Mr. G. Copeland. Although this bird is not rare in this locality, from its shyness it is difficult to procure.--W. P. COCKS, Falmouth, May 19th., 1851.

Red-footed Falcon, (*Faleo rufipes*), at Falmouth.--This bird I flushed in Mr. Jago's furze patch stone quarry, parish of Budock, Falmouth. It was within three yards of me. The plumage of the head, neck, and body, uniform dark slate gray colour; legs, bright reddish brown; bill, yellowish; a broad black bar at the tip of the tail. Size, not larger than the male "*Turdus viscivorus*" here. After hawking close to the ground in Mr. Selley's field for nearly ten minutes, it mounted high and made off for the wood at Trefusis, about half-a-mile from the furze brake.--Idem.

The Jackdaw, (*Corvus monedula*).--I observe in the interesting "Notes" by Mr. S. Hannaford, in your last number, that his experience of the habits of the Jackdaw does not furnish him with any instance of that bird nestling elsewhere than in churches. It may be interesting to him to know, that although they may generally prefer such edifices, their predilection for them is not so strong as to prevent their nesting in other buildings which present equally suitable situations. In the tower, and along the sides of the cathedral church at Sherborne, Dorset, great numbers of Jackdaws annually build their nests, but in the ruins of the old ivied castle belonging to Earl Digby, which is within a mile of the church, may be found, at this season of the year, quite as large, if not a greater number of nests of the same bird. As far as my experience goes, they seem to nestle in any old buildings, and also in the hollows of any old trees, which, from their seclusion, afford a safe retreat. I remember, in the park at Sherborne, finding two Jackdaws' nests in an oak tree, among the forked branches of which, was the nest of a Cape Goose. These facts are sufficient to prove that the bird in question is not exclusively partial to church buildings.--A. P. M., Leicester, May 5th., 1851.

The Jackdaw, (*Corvus monedula*).--In reference to the notice on the Jackdaw, page 67 of "The Naturalist," I beg to state that for the last four years two pairs of Jackdaws have built in a wych elm in my garden. This year they have forsaken me, and are succeeded by Starlings.--R. MACK, Haling Cottage, Croydon, Surrey, May 8th., 1851.

The Jackdaw, (*Corvus monedula*).--At page 67 of "The Naturalist," S. Hannaford, Esq., Jun. states "that he never saw the Jackdaw, (*Corvus monedula*), build but in churches." They build in almost all the old church-towers in Beds., but in Woburn Park they invariably build in the hole of a tree, as I have frequently frightened them out by rapping the tree with a stick, and have seen both eggs and young which have been taken therefrom.--G. B. CLARKE, Woburn, Beds., May 12th., 1851.

On the size of the eggs of the Thrush, (*Turdus musicus*).--Having read an article in the first number of "The Naturalist," I observed it stated at page 22, on the early nesting of the Song Thrush, that the smallness of the eggs in a nest, found in March, arises from the want of proper development in consequence of the severity of the weather. In this matter I have had considerable experience; and have almost invariably found that young birds, in their first season of laying, produce smaller eggs than birds of two years or the second season. It is not only so with Thrushes, but with most other birds, including domestic Fowls. The whole of last May and June, I was staying at Rufford Hall, in Lancashire, (Sir Thomas Hesketh's,) where, on most evenings, I amused myself by searching the woods, shrubberies, and pleasure grounds, for nests; and I am positive I found at least thirty of those of the Song Thrush, many of them varying much in the size and colour of the eggs. Those of the younger birds were small, of a deep blue, and thickly studded at the larger end with black spots; while those of the older birds were pale, scarce of spots, and about one-fourth larger. When a youth I lived near an aviary, (in which were kept gold, silver, and other Pheasants,) enclosing about an acre of ground,

and abounding in laurels and other shrubs; this was portioned off in several compartments. As I had access to this aviary, I reared in it some young Thrushes and Blackbirds, which I kept for six or seven years; feeding them liberally with snails, slugs, worms, etc. Having in this space much liberty, they paired and bred; and from daily visiting them with food, I could distinguish them apart. I am therefore certain the result of the difference in the size and appearance of their eggs, arose from the circumstance I have stated; the younger producing smaller eggs than the older birds.--H. R. BOLTON, 16, Alfred Street, Plymouth, April 30th., 1851.

Singular capture of a Sparrow-Hawk, (*Accipiter fringillarius*).--Many years ago, when a boy, being anxious to obtain a Thrush, I was induced (absurdly enough) to set a rat-trap alongside of a Thrush's nest, containing eggs, in hope that the bird, when returning thither, might, by accident, light upon the trap, (which was not baited,) and thus be secured. The nest occurred in a plantation, and was situated on a fir-tree, about twelve feet from the ground. Having very loosely fastened the trap, which was set, early in the morning, I left the shrubbery and went for a days fishing in the neighbourhood. On my return home, late in the evening, I repaired to the shrubbery with the hope of finding the Thrush caught. I had no sooner, however, entered the first row of trees, than I was seriously alarmed by a screaming, which, to my terrified mind, appeared like the noise of a child. Fearing to proceed any further, and not being able to see any figure, (for it was getting dark,) I summoned up what little courage I had left, and in a loud voice called out,--Who's there? Receiving no answer, I was about to speak again, when I was agreeably surprised by hearing the "metallic rattle" of the trap. I now darted forward, and found a Sparrow-Hawk on the ground, a few yards from the tree on which the trap had been placed, caught by one of its legs only. The bird, which is still in my possession, stuffed, measured from the tip of the beak to the end of the tail, thirteen inches. *Queries*. Did the Hawk follow the Thrush to its nest? or was it on the nest when attacked? Or, is it probable that the Hawk resorted thither to devour the eggs? I am inclined to think the second hypothesis the correct one, inasmuch as I had, a day or two previously, observed a Sparrow-Hawk, probably the same, hovering over the plantation with much expectancy.--SPENCER COBBOLD, M. D., 20, Dublin Street, Edinburgh, August 2nd., 1851.

Note on the Moor-hen, (*Gallinula chloropus*).--Having read with much interest the two first numbers of your interesting publication, "The Naturalist," I cannot refrain from wishing it every success, and, at the same time, corroborating the fact of Moor-hens, (*Gallinula chloropus*,) laying, at times, more than four eggs; as mentioned by your correspondent, J. C. When in Norfolk, two years ago, I discovered the nest of a Moor-hen on the edge of a similarly situated pond to the one described by J. C. The nest was composed of reeds, rushes, and small twigs, and constructed on the tops of some reeds, which stood about a foot above the surface of the water. The hen was sitting at the time, (this was the last week in May:) as I approached she darted off amongst the reeds and overhanging bushes, and exposed to view a nest containing eight eggs. I hid myself for a few minutes, within sight of the nest, and saw the hen cautiously return, and, having assured herself that all was safe, resumed her seat. Almost daily I visited her, until she allowed me to go very near her before she moved from her nest. In due time, about the middle of June, to my great delight, I saw *three pretty little black balls of down*, as a young chick at first appears, skimming and darting over the surface of the pond, already catching flies. The hen was on her nest, doubtless watching her little progeny; she allowed me to nearly touch her before she moved, when I saw a fourth chick attempting to rid itself of its shell, which I had no sooner removed, than immediately it left the nest, and soon found out its three already busy little companions and anxious parent. When I removed from the nest, the hen returned, and continued sitting until the remaining eggs were hatched; and I had the satisfaction of watching this little brood grow up till they were old enough to shift for themselves. As this may interest your correspondent, J. C., I send it to you to make what use you like of it.--S. W. LUKIS, Great Bedwyn, near Marlborough, April 15th., 1851.

P.S.--I heard young Rooks in their nests on the 8th. and 9th. inst.--S. W. L.

On the Moor-hen.--In accordance with my intimation in the second part of "The Naturalist," permit me to inform you that a brood of Moor-hens was observed in my home pond on the 12th. instant, and was seen by myself on the 13th. I am quite convinced I have seen them

still earlier in other years. This remark has reference to the observation in the first part, page 21, that the first brood is hatched early in June; or in the last week in May.--J. C. Black Hall, Devon, May 13th., 1851.

The Siskin, (*Fringilla spinus*,)--I observed a small flock of about fourteen of these birds on the 23rd. of January last, in the new park belonging to the Earl of Stamford and Warrington, Dunham Massey, Cheshire.--SAMUEL ROBERTS, The Downs, Bowdon, Cheshire.

The Nightingale, (*Sylvia luscinia*,) I heard singing last season in a wood about one mile from Shipley, near Bradford, Yorkshire. I understood this bird, at the commencement of its season, attracted such large audiences as to be almost a formidable rival of the Swedish Nightingale.--Idem.

In March last, passing the entrance of the new park, Dunham Massey, I heard a strange confusion of tongues from the sylvan choir, which, on examination, I found to proceed from the fright occasioned by the passing of a Hawk in pursuit of a Song Thrush. Almost every inhabitant of that portion of the wood had mounted the topmost branches of the trees, and were uttering the most discordant sounds that can be imagined; when, as if by magic, the discord immediately gave way to a burst of song from every throat capable of joining in the hymn of thanksgiving, as it appeared, for their deliverance.--Idem.

Carnivorous propensity of the Herring Gull, (*Larus argentatus*,)--Passing over an embankment on the beach, between Lowestoff and Yarmouth, the early part of last year, I came unexpectedly upon this bird, which appeared to be resting itself upon the shingle; I approached it within ten yards, when it rose. I then perceived it had endeavoured to swallow an animal too large to pass the oesophagus, which it endeavoured to disgorge, after having settled a short distance out at sea. For a wonder, I was without a gun, but, on the following morning, I again walked down to the beach, and, to my surprise, saw the aforesaid Gull lying dead, washed high upon the beach. Upon examination, I found it had endeavoured to swallow a large male Brown Rat, (*Mus decumanus*,) the result was, it had died of suffocation.--J. O. HARPER, Norwich, July 7th., 1851.

The Puffin, (*Fratercula arctica*,) *in the winter*.--We have been favoured by W. P. Cocks, Esq., of Falmouth, with an interesting account of the occurrence of the Puffin on the 27th. of January last, at Gwyllyn Vase, near Falmouth. The specimen was dead, but in a perfect condition. He says, "the bird was a tight, well-made, little aristocratic fellow, with unsoiled plumage, and weighed ten ounces." This bird being a regular summer visitant, its occurrence in winter is a circumstance worthy of record. We may ask, was this bird delaying on our shores in consequence of the extreme mildness of the weather during the whole of the autumn and winter; or, was he, like the Cuckoo noticed at page 43, induced to visit us at an earlier period than usual, from the same cause? Its presence at Falmouth at the time stated, is probably referrible to one of these two causes. We should be much obliged to any correspondent who may have met with the bird under similar circumstances, to favour us with an account of it; for we do not think it probable that Mr. Cocks' bird was a solitary wanderer to our coast on that occasion.--B. R. M.

Pugnacious disposition of birds in general towards their dead.--Seeing a notice in your pages of the attack of the Robin on one of its own species stuffed, reminds me of several instances of similar occurrences that have come under my observation; indeed, however pugnacious or otherwise the particular birds may be when alive, they seem in general to have a great aversion to dead or stuffed specimens of their kind. Last June, I reared up two young Bullfinches from the nest, both male birds, which lived together always on the most amicable terms, until one day having had the misfortune accidentally to kill one, the survivor, upon seeing its dead companion, flew at it with the greatest fury, making that half-hissing half-screeching noise, so peculiar to the bird. Another case of the sort I remember in a Peacock, which, on being shewn a stuffed specimen of the same species, with which it had been brought up, and lived with for years, immediately attacked it with beak and spurs most vigorously; and had not its unconscious victim been removed, would soon have succeeded in stripping it of its feathers, and spoiling its beauty: these attacks the bird always renewed on getting sight of its old companion. Having introduced my

Bullfinch, I cannot pass him by without a remark on the wonderful aptitude these birds display for learning tricks—naturally of a bold disposition, when brought up by the hand, they seem to have no fear, and lose that innate dread of man instinctively implanted in them. Amongst other feats my little bird has learnt, he will, on my dropping a seed held at some distance over his head, fly up and catch it in his mouth, or, what I think is more wonderful, stay till the seed comes within reach and then catch it; and this he does with the greatest precision, rarely failing in his object.--F. M. BURTON, 1, Belgrave Street, Argyle Square, London, April 21st., 1851.

Tameness of birds when not molested.--I may just mention, as a proof of the advantages which might accrue to ornithologists, by sparing the gun upon all consistent occasions as much as possible, and otherwise not scaring the objects of their study, that a Thrush, (*Turdus musicus*,) has made her nest this season within three yards of the window of the dining-room here; and a pair of Redbreasts within two. It is most pleasant to watch the little occupants passing to and fro, alike regardless of observation, and fearless of danger. The Thrush has occupied the same bush for two seasons past; and it is not many years since a pair of Ring-doves, (*Columba palumbus*,) built in a spruce fir, not ten yards from the garden gate, where they were constantly liable to disturbance by the ringing of the bell, and the passing in and out of the members of the family; but this they did not seem much to mind, and succeeded in bringing out their progeny, which were afterwards unfortunately pillaged by a prowling Magpie, all, however, in the way of his allotted avocation, so we must not find fault with poor Mag. The male Ring-dove used to descend and walk about the grass-plot, in the early morning, but generally took his departure to the neighbouring park when not engaged in the duties of incubation. A shot has not been fired in the garden, I believe, for at least twelve or fourteen years; nor are the birds otherwise molested, unless by the agency of Cats or Magpies.--R. F. LOGAN, Hawthorn Brae, Duddingstone, near Edinburgh, July, 1851.

The Red Ant, (*Formica rubra*.)--While visiting, a few days since, at Norbury Park, in Surrey, I observed a curious incident relating to these interesting little creatures, illustrative of their bold disposition, which I do not recollect to have seen recorded elsewhere. I was watching them as they climbed in a stream the stems of some old oaks, which grew in the Park, busily searching for beetles and other insects, which, on settling in their path, were instantly seized and borne off; some, from their weight, size, and strength, requiring two ants to carry, one taking hold of the head the other of the tail; others being easily mastered by one; when, on putting my hand near to any part of the line of march, I observed that those immediately underneath suddenly stopped, and by means of somehow or other turning the underside of their bodies upward, by bending the head back, and pushing their tails forward under their legs, so as to have their stings most prominent, placed themselves in an attitude of defence; the greater number, on my putting a piece of stick near them, shewed the better part of valour, discretion, and prudently dropped to avoid the danger; but some were so bold as to lay hold of the twig with their mouths and attempt to wound it with their stings.--F. M. BURTON, 1, Belgrave Street, Argyle Square, London, June 10th., 1851.

A specimen of the common Cabbage Moth, (*Mamestra brassicae*,) came out of chrysalis in my case on the 26th. of April, in the present year, 1851. I never knew the insect to appear before at such an unusually early time, the proper period being June, and it therefore seems to me worth placing on record.--F. O. MORRIS, Nafferton Vicarage, Driffeld, July 5th., 1851.

Review.

Summer Life on Land and Water, at South Queensferry. By W. WALLACE FYFE. Edinburgh: OLIVER AND BOYD. 1851.

THE facilities of conveyance now afforded in all directions, have the effect of annually draining our cities and towns of a large proportion of their inhabitants during the delightful season of summer. All who can possibly escape from

the cares of business and the toils of labour, seek a short season of rest to recruit their exhausted spirits among the refreshing scenes of rural life. The result of the universality of such enjoyment is, that within the last few years, almost every retired village and hamlet in the United Kingdom has acquired somewhat of the stirring, business character of the city, and hundreds who endeavour to rusticate amid cherished scenes, now seek in vain for that quietude and retirement which the localities at one time enjoyed. A few rural villages and country towns still, however, remain, for the enjoyment of those who cannot find enjoyment amid the busy bustle of the "fashionable watering-place;" South Queensferry is one of those quiet retreats. "Little, however, do the denizens of Edinburgh appear to know of the surpassing beauty of the little watering-place of South Queensferry, lying a matter of nine miles distant from the Edinburgh General Post-office; separated from any of the lines of railway by at least half of this distance, "The Ferry" is yet appreciated by the few who render it their place of summer resort, on account of its beauty and seclusion."

The object of the delightful work now before us, is to depict the picturesque and artistic beauties of "The Ferry" and its environs; to detail the many interesting and important events of Scottish history with which it is connected; and to illustrate these by an elucidation of its antiquarian relics. To us it is chiefly a source of satisfaction that the talented author has allotted a portion of his work to the natural productions of the district, and the fertile waters of the Forth have afforded him many interesting subjects for comment. Throughout the whole volume the author evinces a keen eye to the beauties of nature, while an extensive knowledge of her productions enables him to contribute many interesting facts to science. The various tribes of animals are noticed at length in an exceedingly interesting manner; and among the notices of native plants, we find the following enumerated, their popular names, localities, etc., being given in addition to their scientific titles:—*Glaucium luteum*, *Cochlearia officinalis*, *Silene nutans*, *Silene maritima*, *Astragalus glycyphyllos*, *Astragalus hypoglottis*, *Oxytropis Uralensis*, *Vicia lutea*, *Hieracium* Sp, *Potentilla verna*, *Ligusticum Scoticum*, *Orchis pyramidalis*, *Habenaria albida*, *Thalictrum majus*, *Silene Anglica*, *Beta maritima*, and many other interesting floral beauties.

Amongst the numerous beautiful engravings which adorn this elegant work, we find one representing a group of birds, and another a group of fishes, native to the district. These are both excellent, artistically and scientifically, and any one having a slight personal acquaintance with the animals represented, will readily recognise the various species in the plates, the *portraits* being at once characteristic, life-like, and accurate as regards scientific details.

We have no room to make extracts, else we should certainly draw upon the volume for many valuable particulars respecting marine productions; but the book is altogether so interesting that we feel no hesitation in recommending its perusal to all interested in Natural History, and especially to those within

reach of that, we had almost said, most interesting of all rural spots, "The Ferry." The author's extensive acquaintance with literature and history, enables him to give an interest to the facts detailed respecting natural productions, which they could not receive from the pen of one exclusively devoted to science.

Proceedings of Societies.

Geological Society of Edinburgh, June, 1851.—ON CHALK FLINT, FOUND IN TWEEDSMUIR.

MR. BELL read a paper stating that he had obtained several specimens of Chalk Flint, from the Boulder Clay, upon the farm of Hawkshaw, in Tweedsmuir, situated upon an offshoot from the hill called Hartfell, two thousand six hundred and thirty-five feet high, the highest hill in the south of Scotland.

In alluding to the probable manner in which the Flint had been carried from the low level at which we now find the Chalk formation in Britain, and deposited there at a height of about fourteen or fifteen hundred feet above the sea, he suggested that unequal submergence during the deposit of the Boulder Clay, might account for the Flint being thus found so much higher than its former probable level; and in illustration of this view, stated, that he thought we had evidence to shew that during the deposit of the Boulder Clay, when this northern part of Britain was submerged, the south of England had remained at or near the surface; and in support of this, adduced the fact, observed by different writers, of the entire absence of the Boulder Clay in that district. After stating several reasons for supposing that coast ice, and not icebergs, had been the transporting agent, he supposed that Hartfell might then have existed as an island, and that coast ice having the flints frozen into it, blown off by a gale, or carried by a current, from a chalk sea-coast, had been stranded upon the then island of Hartfell, and there melted.

The Querist.

The Bustard, (Otis tarda.)---It would be interesting if any reader of "The Naturalist" would furnish well-authenticated instances of that noble bird, the Bustard, having been found in England during the last thirty years. A friend of mine has a pair of stuffed specimens, which I think are in finer condition than any I have seen elsewhere.--HENRY TUCKETT, Frenchay, Bristol.

It would be a great advantage to many of your entomological readers, if some of your correspondents would furnish to them in the pages of "The Naturalist," monthly, beforehand, a list of the species of insects which may be expected to be found in the ensuing month, on the first of which the magazine is published. Such a series of articles, monthly, on the plan of Samouelle's "Entomologist's Useful Companion," might be published collectively in a volume at the end of the year, and would doubtless be purchased by many entomologists. Let me beg of any of your readers who have leisure for such a work to comply with this request.--F. O. MORRIS, Nafferton Vicarage, Driffield, July 3rd., 1851.

I find that I must add to the "interrogative particles," in the May number of "The Naturalist," two more similar queries respecting the occurrence in this country of the Yellow-nosed Albatross, (*Diomedea chlororhynchus*,) and the Painted Bunting, (*Spiza ciris*.)--Idem.

What is the best method of killing Lepidoptera, and other insects, for the cabinet; without injury to their colours?—D. G. F.

Mr. Dorville incidentally mentions having some unpublished memoranda of Col. Montagu's in his possession. May we venture to ask him if he feels at liberty to publish them in our pages. They would doubtless be very interesting to all admirers, (not a few,) of Col. Montagu.—B. R. M.

ECTOCARPUS TESSELLATUS. (HAYDEN.)

SPECIFIC CHARACTERS.

DESCRIPTION OF PLATE.—No. 1. is a Drawing of the Plant as it appears when laid upon paper. Nos. 2 and 3, branches and silicules of the same, more or less magnified. In Figure 3, one of the Silicules appears to have burst at the end, and to have discharged its contents.

FILAMENTS somewhat tufted, from two to four inches long, very light and feathery as they float in the sea, not much branched, as compared with other species of *Ectocarpus*, but bearing a remarkable resemblance to *E. fasciculatus*, in having short multifid ramuli crowded together into little apparent bundles throughout the whole length of each branch. Branching somewhat irregular, between opposite and alternate, the main branches are *mostly* opposite, while the penultimate are very irregular, and at their points are often hooked backward in a scorpioid manner. The ramuli are secund, closely set, a ramulus rising from almost every joint of the penultimate branchlet. The Articulations are about as long as broad, sometimes rather less. The Silicules, or Propagula (pod-like fruit) are abundantly scattered; sessile, on the upper surface of the penultimate ramuli, varying in shape from oval to elliptical, and sometimes inclining to reniform, regularly tessellated with minute dark squares, which are clearly defined under a glass of moderate power by pellucid lines, that intersect each other at right angles. This characteristic Silicule clearly stamping the plant as new to British Algology, has enabled us to append the above specific designation. Colour, a clear olive. Substance, soft, closely adhering to paper.

This plant, besides being new to the British list, has the merit of being tolerably abundant in the place where it was found in July, 1851, by the Rev. F. W. Hayden, of Skelton, near York. Whoever walks to the farthest point of Filey Bridge, Yorkshire, at low water, will there tread upon *E. tessellatus* at almost every step; it will be found growing on the rock, on shells, and completely clothing the fronds of *Himanthalia lorea*. So much does it resemble *E. fasciculatus* in its outward form, that Dr. Harvey, Author of the "Phycologia Britannica," remarks to Mr. Hayden, "It is to the naked eye so like *E. fasciculatus*, that until I had put it under the glass, I thought it must be that species."

LOCAL JOTTINGS.

DORCHESTER—DORSETSHIRE.

BY J. GARLAND, ESQ.

BELIEVING every fact in Natural History, however slight, to be of importance, and wishing to compare arrivals and departures of migratory birds, notes of particular habitats, etc., with the observations of others on the same subject, I purpose to string together a few memoranda with that view from time to time,

but without, I fear, much plan or order. If any reader of "The Naturalist" would do likewise, it would, I think, aid the cause, although, perhaps, in a trifling degree.

White Jackdaw, (*Corvus monedula*).—A very good specimen of this bird, perfectly white, is now in the possession of Mr. Pulman, gun-smith, of this town. It was taken just a twelvemonth since, after it had escaped, not quite fledged, from the tower of St. Peter's church, in the belfry of which, many Jackdaws build annually. It is now in fine condition.

The Lamprey, (*Petromyzon fluviatilis*).—I have not seen any mention of this once much-esteemed little fish being found in this neighbourhood, but I have met with several specimens in the dykes in the water-meadows near this town. They were not, however, of large size, but very distinctly marked; and, like the Eel, very tenacious of life.

Artificial Flies.—I can bear witness to the fact of Swallows being caught sometimes by Artificial Flies, as mentioned by Mr. Hannaford, at page 68, having myself some years since taken two accidentally by that means, whilst fishing in the River Froome.

Yew Fruit, (*Taxus baccata*).—I can corroborate the opinion of Mr. Mc'Intosh, at page 74 of this work, as to the innocuousness of this fruit, having frequently when a boy eaten of the berries without any inconvenience arising therefrom.

Common Primrose, (*Primula vulgaris*).—My experience as to the Primrose in this neighbourhood differs from that of Mr. J. A. Robinson, of Southport, page 93, for it has been unusually early and plentiful this year at Cerne, and in the lanes and hedge-rows near.

Cistus, (*Helianthemum vulgare*), *Common Rock-rose*.—This pretty little wild flower is seldom met with, I am informed, in this neighbourhood, although very common in Scotland, but I have now found it in perfection on a hill called "The Giant's Hill," at Cerne. Many others, as the *Polygala*, white, pink, and blue, *Hieracium*, *Linum*, *Tormentilla*, *Thymus*, etc., are likewise abundant there.

Dorchester, Dorset, September, 1851.

A TRIP TO WICKEN-FEN, CAMBRIDGESHIRE, IN PURSUIT OF SPECIMENS OF NATURAL HISTORY.

BY R. A. JULIAN, ESQ., JUN.

BEING accompanied by Mr. Green, of King's College, and Messrs. Outram, Park, and Kaine, of Emmanuel College, I left Cambridge at seven o'clock in the morning, and proceeded down the River Cam, in a four-oar. We presently reached Waterbeach, where we were informed by a farmer that some *Dob-divers*, (a local name for Little Grebes,) were breeding in a pond among some reeds about half-a-mile distant from the river. Wishing to see their

nests, and also to procure an old male in his breeding plumage, we lifted the boat on our shoulders, and at last, after many a rest, and occasionally dragging her where the ground was level, we launched her in the said water; but were much disappointed at finding nothing but Moor-hens and their nests: however, after having obtained a very good variety of these birds' eggs—one nest containing thirteen; and having had a very tiresome task in getting back our boat, much to the amazement of ploughboys and cattle, we reached Wicken at about eleven, and went into the fen chiefly in search of Grasshopper Warblers, where, walking on briskly among the sedge, we succeeded in obtaining several fine specimens; we also saw a very beautiful pair of Harriers, which a man informed us had a nest among the reeds; I have since been informed by G. Outram, Esq., that these birds were obtained soon after I left, with their eggs; and proved to be Montagu's Harriers, (*Circus Montagu*;) a quantity of Cuckoos, a few Turtle-Doves and Lapwing-Plovers; and the smaller species of Sedge Warblers, were exceedingly numerous; and I fear ere we learned to distinguish them from the Grasshopper Warblers when on the wing, many were sacrificed from their similitude. The former fly and appear much to resemble the Hedge Accentor, (*Accentor modularis*, Cuv.,) and the latter from having reddish rumps may be readily known; when the Grasshopper Warblers alight they seem to settle down as near as possible to the roots of the reeds; and in one instance I saw one perch half-way up a reed, and creep down the stem like a mouse. A few days intervening, I again visited the fen, and was so fortunate as to obtain a Grasshopper Warbler's nest with six eggs: it was built among the sedge very near the ground, and was composed of a little moss lined with dry grass; the eggs were round-shaped, and thickly dotted with light carnation spots. In the fen, on the willow-bushes, I observed caterpillars of the Common Tiger Moth, Scarlet Tiger Moth, Egger Moth, and Drinker Moth, very numerous; and saw great quantities of Swallow-tail Butterflies.

Laira House, Plymouth, May 26th., 1851.

FACTS IN THE HISTORY OF THE COMMON CUCKOO, (*CUCULUS CANORUS*.)

BY J. MC'INTOSH, ESQ.

"Facts are stubborn things."

At pages 11 and 12 of "The Naturalist," I have recorded, from actual observation, the feeding of the young Cuckoo by its female parent, and that, as long as it could procure them, with the caterpillars of *Abraxas grossulariata* in the month of July, 1850, and that the female cries "Cuckoo, cuckoo." These facts have been attacked and denied in a Weekly Newspaper, called the "Gardener's Chronicle." Now in justice and fairness to your readers and myself, I consider it my duty to produce sufficient recorded evidence from

Naturalists, to which the readers of "The Naturalist" may refer to show that I have really stated nothing novel; but merely confirmed what has already been known of the habits of this singular bird, by those acquainted with it.

It has been positively stated that the Cuckoo never feeds its own young. In the "Gardeners' Chronicle," page 469, for 1851, Mr. W. Kidd, that delightful Naturalist, and well-known writer on "British Song Birds," says, "It is a fact, patent to most ornithologists, that the Cuckoo has been seen in the act of assisting in feeding her offspring." The same gentleman again says, "A few years since, the sight of a Redbreast feeding a young Cuckoo, assisted by the *old Cuckoo*, was witnessed by a most truthful and worthy ornithological friend of mine, now no more. Nor is this by any means a solitary instance of the natural affection of the Cuckoo."

In the "Mag: Nat: Hist:" vol. 9, page 638, Mr. Blyth, a well-known writer on the habits of this bird, says, "It is certain that the maternal feelings of the Cuckoo are not quenched; astonishing as this may appear, Mr. John E. Gray, of the British Museum, informs me that he has himself seen a Cuckoo, day after day, visit the nest where one of its offspring was being reared, and which it finally enticed away from its foster-parents. I had, says Mr. Blyth, previously heard of analogous cases, but was disposed to regard them as fabulous, until corroborated by so paramount an authority."

Again, it has been positively stated that the female Cuckoo never cries "Cuckoo." In vol. 8, "Mag: Nat: Hist:" page 382, "I had," says Mr. W. H. White, "a few summers ago, the full means of ascertaining the fact, that both sexes of the Cuckoo utter the call "Cuckoo." Page 329, same volume, Mr. Blyth says, "Both sexes, I believe, utter the call "Cuckoo." A little farther on, the same gentleman says, "The common and more generally known note 'Cuckoo,' is alike repeated either when perched or on the wing; and I am fully confident in my own mind, by both *sexes*." Now Mr. B. says in a note, "Mr. Yarrell also inclines to the opinion, that this call-note "Cuckoo" is alike uttered by both sexes. But, says Mr. B., I will not speak quite positively on this point till I have myself examined a female, which had been heard to sing. It is the decided opinion, however, of several observant persons of my acquaintance, for the accuracy of whose observations I have the highest regard, that this note is *common to both sexes*; and one even tells me that, as, with a gun in his hand, and talking to a friend, a Cuckoo alighted upon a tree close by, and several times repeated its call; he shot it, and a few days after, his friend told him it was a pity he had shot it, for it had an egg almost ready to lay." In the "Gardeners' Chronicle" of August 2nd., there is a letter from a Mr. Browne, in which he states that a young lady (whose name I think he does not mention,) has recorded the fact of a Cuckoo being shot while uttering the cry "Cuckoo," and in which *two eggs* were found. Was this a male bird? I make no apology for making use of this fact, although Mr. Browne in *general terms* denied my statements; and yet brought forward this *particular* fact, which is clearly in my favour, as far as it goes.

Mr. Turner, "Mag: Nat: Hist:" vol. 8, page 286, "A Cuckoo sang in the neighbourhood of the garden at the time the young was growing strong enough to fly ably." Was this bird male or female, I must leave my readers to pronounce. To this I may add that I have shot them, male and female, "Cuckoo cuckooing" so late as the 8th. of August. See "Gardeners' Journal," page 484, for 1851.

It has been positively stated that it is well known "that the Cuckoo leaves this country in the end of June or beginning of July." How far the correctness of this positive statement can be relied upon, the following extracts will show:—In "Mag: Nat: Hist:" vol. 4, page 184, Mr. White says, "On the 28th. of July, heard my favourite *C. canorus* at five a.m. last seen a few days afterwards. Professor Macgillivray, "Manual of British Birds," page 82, says in *July or August*. "Grave's British Ornithology," vol. ii., (*this work is not paged,*) quits towards the end of July, though we have known them killed so late as the month of October" Again he says, "We have seen two birds, one on the 26th., and the other on the 27th. of August: the former was a male, and was uttering its well-known cry of Cuckoo; the sex of the latter one we did not discover." In the "Zoologist," page 2455, the following notice occurs:—"Late-remaining Cuckoo, (*Cuculus canorus*.) A Cuckoo was shot close to the city of Worcester, on the 14th. of October last."—M. CUTLER, Bevere House, near Worcester, April 19th., 1849.

"Mag: Nat: Hist:" page 275, vol. 4., "This bird does not depart, or leave this country, till long after it has ceased to sing; not I believe till the autumn, or at least till late in the autumn."—Rev. W. T. Bree. Can this be the same Mr. Bree, who in the "Gardeners' Chronicle" of August 2nd., so strongly denies the truth of my statements? Vol. 8, page 340, "Mag: Nat: Hist:" Mr. Blyth says, "a very accurate observer informs me, that in the north of Scotland, he once saw a flock of *sixteen Cuckoos* in September!" In a note Mr. B. adds "Another person also, whose authority in these matters I have reason to respect, tells me that the old Cuckoos also congregate in flocks of twenty to thirty towards the *close of summer*." The Bishop of Norwich, in his Lordship's "Familiar History of Birds," at page 290, says, "that from the 18th. to the 22nd. of July, at one time forty Cuckoos were seen in a garden in the County of Down, Ireland." Were there no old birds in this flock? "Mag: Nat: Hist:" vol. 8, page 288, Mr. Turner, of the Botanic Gardens, Bury St. Edmunds, who has recorded some interesting facts on the history of this bird, says, "On July 29th., one of the young Wagtails was dead upon the nest, and the others sat shivering upon the ground beneath. I again replaced them; but, on August 2nd., they were not in the nest, nor could I see them afterwards. The young Cuckoos continued to thrive for some days, and then fell a prey to a cat."*

* In corroboration of these statements, we may mention that an old Cuckoo was shot near Thirsk, by Mr. Johnston, son of the Rev. C. Johnston, Canon of York, on the 14th. of August, in the present year, and was stuffed by Mr. Graham, of this city; who also stuffed a young Cuckoo, shot on the same day; and an old one shot near Leeds, by Mr. Bond, of that place, on July 24th. last.—B. R. M.

It has also been positively stated that it is "rare for the Cuckoo to lay its eggs in the nest of the Hedge Sparrow, and that a recent Hedge Sparrow's nest is not met with in July." Now, on the 7th. of August, 1850, I took a nest of this bird with fresh-laid eggs, which are now in my possession. On the 22nd. of July, 1851, I took a nest with two new-laid eggs, which are also in my possession. I have at this moment, August 6th., 1851, a nest with young ones, in a hedge, which divides my garden from my neighbour's. And I see by my Journal that I have taken the nests of this bird from March to August.

In the "Gardener's Chronicle," August 9th., 1851, Mr. Waterton, the celebrated Naturalist, says, "I have now, (August 4th.,) in a close-clipped holly-bush, a Hedge-Sparrow's nest, with three unfledged young ones in it. On Wednesday last, it had three eggs in it. On Saturday, it contained three naked birds." Also "I will farther add that, the year before last, in the last week in August, I found a Dicky Dunnoek's nest here in a thick yew bush, with four eggs in it."—Walton Hall, August 4th.

It is only a waste of time and your readers' patience, to confute the silly assertion as to the Cuckoo not laying its egg in the nest of the Hedge Sparrow. All the Authors which I have consulted and have in my library, (which are not a few,) mention this bird's nest either first, second, or third in their list of birds, in the nests of which the egg of the Cuckoo is found.

It has also been positively asserted that the caterpillar of *Abrazas grossulariata* is not found in the month of July. Now it so happens that I have on more occasions than one found the caterpillars in August and beginning of September; and am inclined to consider this insect double brooded, but on this I will not be quite positive, till I have made further experiments. I had this year, up to the 31st. of July, thirty caterpillars on a gooseberry bush in my garden: these have been devoured, with the exception of ten, which are now in the chrysalis form, by the common House Sparrow;* and I have now twenty chrysalises in a box.

Now, in the newspaper referred to, it has been positively stated, and attempted to be defended that I am in error to all these facts. And when I replied to confute these false assertions, my reply was refused insertion; and I was obliged to send it to the "Gardener's Journal," in which it will be found under the date August 2nd.

From the foregoing extracts which I have brought to bear on this subject, the public will now be in possession of sufficient evidence to confute and disbelieve the very ungentlemanly remarks made by the writers on my observations at pages 11 and 12 of "The Naturalist."

Charminster, Dorset, August 12th., 1851.

* Mr. Mc'Intosh has forwarded to us two of these pupæ, which are undoubtedly those of *ABRAXAS GROSSULARIATA*, and have the characteristic gold bands.—*B. R. M.*

NOTES ON THE YOUNG CUCKOO.

BY MR. CLEMENT JACKSON.

IN June 1849, a neighbour brought me a young Cuckoo nearly fledged, which he had found in a hedge-bank in his field, I presume in the nest of the Titlark, (*Anthus pratensis*,) that species being the foster-parent of all the young Cuckoos I have been able to identify in this vicinity. I undertook to rear it, and found no difficulty, as it fed readily on a paste of boiled egg and bread rubbed in a mortar, and grew rapidly to a handsome bird, soon taking to feed itself freely, picking up lumps of the paste, and jerking them back into its capacious throat with great dexterity. It appeared very fond of this paste, and also devoured great numbers of cockroaches, (*Blatta*,) eating one hundred and fifty good-sized ones in one day; these were first scalded and put into the cage dead; but its favourite morsel was the full-grown larva of the egger or drinker moths, and such like hairy caterpillars, which it would take from the hand with the extreme point of the beak, and pass them rapidly through it several times backwards and forwards, in a very curious and dexterous manner; it then beat them against the perch till the viscera were got rid of, and swallowed the remainder. A cup of water was fixed at the end of the perch, as it drank very freely; but was averse to alighting on the floor of its habitation, (a large wicker Dove's cage,) which it rarely did, except to feed; and then quickly resumed the perch, which it held with a very tenacious grasp; the curious form of its foot being then seen to advantage.

About the middle of July, it became excessively restless at night; after remaining tolerably quiet all day, about dusk in the evening it regularly commenced, I presume, its fancied migratory journey; either fluttering against the bars, or incessantly and vigorously fanning its wings whilst sitting on the perch, as if in steady flight; and no doubt passing over many an imaginary mile southwards. At these times I often took it out of the cage, and held it on my finger, by candlelight; but it still continued its incessant and vigorous flutter, looking eagerly about, and occasionally springing off in a very impatient manner; which it continued, whilst we remained with it, nightly till its death. By this means its wings and tail got sadly mutilated, but it did not at all lose flesh, continuing to feed heartily by day, and flutter vigorously by night; till one day about the beginning of September, it got hurt in attempting to fly towards the open window, which put an end to its career, for although it survived a few days, it neither fed nor fluttered again. On dissecting it to prepare the skeleton, I found it excessively fat, which probably in part occasioned its death.

A few years since, I was requested by an acquaintance, to examine a Lark's nest, and ascertain the species for him. On approaching the spot, the old bird, (*Anthus pratensis*,) flew out, and I found a naked young Cuckoo sole occupant; the three young Titlarks lying dead close to the nest, very recently

pitched out, and within a few inches of their mother's head, as she carefully sat on their murderer, imparting that warmth which, but for his interference, would have nourished her own hapless offspring.

Another young Cuckoo was found, and put in a cage, into which the poor Titlark immediately followed, and continued to feed it in confinement; but from want of food and attendance they did not survive long: and of many young Cuckoos brought me for preservation, I have been informed that although fully fledged, they were still anxiously attended by the foster-pair of Titlarks. I have heard of one Cuckoo's egg being found near Liskeard, in an Accentor's nest; but the nest being destroyed, I had not an opportunity of identifying it, though from its colour it could scarcely be mistaken there.

East Looe, Cornwall, August 1st., 1851.

THE NIGHTINGALE IN DEVONSHIRE,

BY W. F. W. BIRD, ESQ.

IN Mr. Julian's account of the birds which are summer residents at Plymouth, communicated to "The Naturalist" of this month, he says he has never observed the Nightingale in Devonshire. I hope he will permit me to inform him, that I, and others, have seen that bird in his beautiful county, though I know that the general impression is in accordance with his own observation. It appears, at first sight, very strange that in a county possessing not only a mild climate, but much water, and every kind of soil and vegetation, a bird should not be found which is so common in almost every other part of England. The best of our modern ornithologists agree, however, with Mr. Julian; but Willughby says that "Nightingales are very frequent in summer-time in the south part of England, but in the north more rare." Pennant, on the authority of the Cornish historian, Borlase, observes that "it is remarkable that this bird does not emigrate so far as Cornwall, a county so very mild that myrtles flourish in the open air during the whole year." But he does not exclude Devon. Col. Montagu says "Nightingales are not found farther west than the eastern borders of Devonshire, although they are plentiful both in Somersetshire and Dorsetshire. Why they should not be found in all the wooded parts of Devon and Cornwall, which appear equally calculated for their residence, both from the mildness of the air and variety of ground, is beyond the naturalist's penetration." He then refers to, and rather countenances, some fancied connexion between Nightingales and cowslips. Mr. Yarrell allows the bird to be found "in the eastern part only of Devonshire, about Exmouth, and no farther west in that direction;" and "that it has been heard near Barnstaple, in North Devon." However justly great the authority of these writers, yet when we see them defining such arbitrary, not to say fanciful, geographical limits, to the visits of a bird of passage, one can hardly help thinking that perhaps observers may be wanting, in Devonshire, as well as Nightingales.

But to turn from books to facts. Mr. W. R. Fisher, one of the authors of a history of the birds of Norfolk, was with me in Devonshire, in the spring of 1846; and on inquiring of Mr. W. F. Ross, of Topsham, a very eminent ornithologist there, and probably known to Mr. Julian, as to the fact of Nightingales being rare in that part of the world, he informed us that he heard them repeatedly every year; and a very few days afterwards, namely, on Thursday, the 16th. April, 1846, we both saw and heard the Nightingale singing on a tall elm tree, in the Northernhay, a public promenade, at Exeter. That we were not the only persons who saw the Nightingale in Devonshire in that year, is shewn by a communication made the following month to "The Zoologist;" in which Mr. Murch, of Honiton, mentions that one had just been killed near that town. I venture, therefore, respectfully to suggest the desirability of ornithologists, in other parts of Devon, looking out for this accomplished warbler, and making public any further appearance on his part. I feel satisfied that, to be found, he only requires to be looked after.

5, Kings Road, Bedford Row, June 13th. 1851.

ON THE ARRIVAL OF SWALLOWS.

BY W. BALSHAW, ESQ., M. R. C. P.

As noticed in my former communication, April 10th., one of my boys assures me that he saw three Swallows pass over Fleetwood, on the morning of the 3rd. of April. I did not myself notice any until the 12th. of that month; on which day I observed two skimming over the marsh, near the railway, about a mile from the town. On the 18th. I saw one hovering over the bay, and another near the landmark, about two miles distant. Owing to some cause or other, they are still very rare in this locality; I scarcely ever observe more than a single pair together in any of my strolls; and this has been a subject of remark again and again by my boys, who are keen observers.

On our arrival from the south, at the end of April, last year, I was struck with the fewness of the Hirundines throughout this neighbourhood. They were scarce during the whole summer, but certainly their numbers might be looked upon as considerable in comparison with the present season. Two pairs built under the projection of the stone cornices above our windows. When they had eggs, a heavy storm of wind and rain destroyed one nest entirely, and the other partially. The latter was immediately repaired by its thrifty and laborious occupants, but I am sorry to say before the young were fledged we were visited by another severe gale and pouring rain, during which the nest and brood fell a sacrifice. Both pairs deserted their chosen habitat.

The following dates have reference to the neighbourhood of Southampton:—
1842.—April 26th. A single Swallow seen.

1843.—April 14th. A single Swallow seen.

In these two years they were observed skimming over exactly the same piece of ground at the dates given.

1847.—April 19th. A single Swallow seen: on the 21st. several noticed.

1848.—April 13th. Swallows first made their appearance.

1849.—April 13th. Swallows first made their appearance.

1850.—April 13th. Swallows first made their appearance.

During these three years, as will be seen, there was a remarkable coincidence in the date of their arrival.

Last year the Nightingale preceded the Swallow, having been heard pouring out its enchanting song as early as April 9th.

I must now add a note in corroboration of the fact that, sometimes at least, an individual specimen of the Swallow tribe may be noticed in the very depth of winter; a subject which, as you are aware, occupied the attention and careful inquiry of White of Selborne. The following observations are extracted from my journal, at Southampton, in the year 1843:—

Tuesday, December 19th. This morning a Swallow was observed flitting about for some time in the front of the house.

Wednesday, December 20th. The Swallow again observed, hawking for insects.

Saturday, December 30th. The Swallow has been seen several times since the previous date. Thrushes have begun their song in good earnest, and make the neighbourhood ring again with their delightful melody. Robins have likewise commenced their full song.

In 1842 the Cuckoo was first heard on the 27th. April.

Fleetwood, 1851. On the 13th. May, during an evening walk from Preesall, a beautiful village on the opposite side of the River Wyre, the Cuckoo was heard for the first time this year.

Fleetwood, Lancashire, June 13th. 1851.

FOREIGN BODIES IN EGGS.

BY RICHARD NEALE, ESQ., M. R. C. S.

EARLY during the present year a lady, when on a visit to some friends, was surprised by feeling the bowl of the spoon strike against something solid at the bottom of the egg, of which she was partaking at breakfast; which proved to be, upon close examination, two shilling pieces firmly glued together. Whether there was any external mark upon the shell, indicating their presence; or whether the egg possessed its natural contour, no definite information can be obtained; but the impression is that there was none; that no trick had been played was most positively and certainly ascertained. Lately I read of a similar case in one of the weekly papers, where a piece of glass, however was the foreign body.

The most probable explanation of these curious facts appears to me to be the following:—The alimentary canal and the oviduct or tube through which the eggs are passed out of the body of the fowl, both terminate in a common receptacle, called the *cloaca*; but each time that the former rids itself of foreign matter, its termination is brought by certain muscles to the exterior of the body, and thus the matter is not retained within the cloaca; the bird however, having swallowed the coins in the one case, and the glass in the other, was unable to expel them, and they stuck in the cloaca, instead of being passed out of the body altogether; when by a peculiar nervous action called by physiologists, reflex, they must have entered the orifice of the oviduct, and travelled up that tube a certain distance before the calcareous envelope, or shell of the egg was formed, which thus covered them over, and concealed them from view. It would be interesting to know exactly the situation of foreign bodies in these cases—whether next the shell and separated from the albumen or white of the egg by the *membrana putaminis*, or thin skin capable of being peeled off from the interior of the shell; or whether embedded in the albumen—a circumstance not noted as far as I can learn in either of the cases mentioned.

This explanation appears more probable from a curious case that occurred in a little boy who was dragged along a gravel path by his playmates; two years after, symptoms of stone in the bladder were noticed, and upon operating a large stone was extracted, the nucleus or centre of which was formed by a piece of gravel; several pieces of which were extracted from the urethra at the time of the accident, but this one must have travelled up by reflex action to the situation mentioned.

Perhaps it may be as well to explain what reflex action of the nerves is, in a homely and popular way, for the benefit of those who have not studied physiology. By such is meant those actions that take place, involuntarily, with or without consciousness, where irritation is applied to the nerves of one part of the body, causing motion in or near the part from a nervous influence, conducted along one class of nerves, called afferent or sensory, to the spine, and thence reflected by another class, called efferent or motor: for example, a person takes snuff, causing irritation of certain nervous fibrils spread out upon the lining surface of the nose, of which irritation he is conscious; this is conducted to the upper part of the spine by one class, and thence reflected by another class, of nervous fibrils, to the muscles of the face and respiration, generally causing sneezing. Or again, if the finger be placed in the palm of a sleeping child the hand contracts, and grasps the irritating body, without any consciousness on the part of the infant, through a nervous action of the same character as in the previous case. Should any of your readers know of a more probable explanation, they certainly would confer a favour by stating it.

Fazeley, Staffordshire, August 29th. 1851.

FOREIGN BODY IN A HEN'S EGG.

BY HENRY DENNY, ESQ.

A GENTLEMAN in this town met with a somewhat singular occurrence on the 5th. of last month at Inverness, and which he has called upon me to relate, which is this:—On breaking an egg for his breakfast at the above town, he perceived something black in the substance of the egg upon removing the shell, and which proved to be a *horse hair* sixteen inches in length, and which he brought home with him to shew me. Can you or any of your friends account for the hair being in this extraordinary situation.

Leeds, May 14th., 1851.

NOTES ON THE LEPIDOPTERA OF
THE WEST OF SCOTLAND AND FIFESHIRE.

BY J. GRAY, ESQ.

(Continued from page 136.)

THE next section of the Lepidopterous insects, that of the Geometrine Moths, on which we now propose giving a few local notes, comprises species of much beauty and elegance of structure, in which respect, as well as in the occasional suspension of the crysalis, they bear considerable resemblance to the *Diurna*—the

——“painted populace,
That live in fields, and lead ambrosial lives.”

Differing widely from the preceding group in their general aspect, they are equally distinct in their habits, and in their flight devoid of that strength of wing and rapidity of motion so conspicuous amongst the species of the *Nocturna*; starting off in a sluggish and unwilling manner on being disturbed during the day, and hovering in the twilight over hedge-rows, etc., ever and anon settling amongst the foliage.

These pretty Moths are found in much greater abundance in cool and shady places, secure from the heat of the summer sun; for no sooner are the wandering steps of the naturalist turned in the direction of their favourite haunts, in some woody ravine or grassy dell, than they may be observed, alarmed at the sound of his advancing footsteps, and shunning his approach, forcibly telling of intrusion—seeming almost to urge his departure, and restore them to their former repose.

Though at some loss amongst the great number of synonyms with which the Lepidoptera are burdened, we have been guided in our selection by a desire of using those most generally recognised; with a view to which, we have in most cases employed the original specific names given by their describers, without availing ourselves of the artificial terminology recently attempted to be introduced.

Amongst the more abundant of those species frequenting heathy places in

the month of June, is the little *Fidonia atomaria*. The chrysalis, which is of a beautiful green colour, with the wing cases brown, we have invariably found deposited in very wet swampy places, lying near the surface, among the tangled roots of the heath.

In our rambles through fir plantations during the same months, *Fidonia piniaria* never fails to engage our attention; flying in the hot sunshine with great agility amongst the branches. It is very common through the district.

Mæsia flavillacearia occurs in sparing numbers at Kirkintilloch and various other localities, in the vicinity of heaths.

Hybernia capreolaria is a common insect near hedge-rows and woody places in the early spring. *H. prosapiaria* and *H. defoliaria* appear in the autumn, but are much scarcer, occurring near Glasgow and in various parts of Fife. *H. pilosaria* is also rather scarce, occurring in the vicinity of Glasgow in March, resting on the bark of trees in gardens. *H. rupicaprararia* and *brumata* are found in hedges during the winter months.

Biston betularius, though occurring in many places throughout the west of Scotland, is much more plentiful in Fifeshire; thus appearing to be somewhat local in its distribution.

Crocallis elinguararia occurs in considerable plenty near Glasgow and various other places, in the beginning of September; near Lanark it is also common. A few years ago, we recollect having met with it in a woody ravine near this locality in great profusion; and though at all times this moth is an exceedingly beautiful object on the wing, from its soft and fluttering appearance, we were much struck with its singular flight on that occasion, as one specimen after another wafted past us in quick succession, not unlike large snow-flakes, continuing till the twilight merged into darkness, when they apparently took refuge among the surrounding foliage.

Geometra bidentata and *G. illunaria*, though hardly abundant, are yet frequently met with in many places. *G. lunaria* is much scarcer in this district; we are only aware of its occurrence near Falkland, in Fifeshire, where it appears in June. *G. Tiliaria* is also scarce, or, at least, local, occurring in the neighbourhood of Ayr.

As everywhere abundant insects, may be mentioned *Campœa margaritaria*, *Cabera exanthemaria*, and *pusaria*; *Halia vauaria* and *Larentia chenopodiata*; also *Rumia cratægata*, the 'Common Brimstone,' an insect of much beauty, enlivening every hedge-row during the summer nights in countless numbers.

Ellopiæ fasciaria frequents fir plantations near Lanark and elsewhere, but in somewhat sparing numbers; it appears to be strictly nocturnal in its habits, and we have invariably found it in the day-time secreted in crevices of old walls or other lurking-places, at no great distance from firs.

Hipparchus papilionarius is also of nocturnal habits; occurring in very sparing numbers in Renfrewshire.

Alcis rhomboidaria is a common insect, frequenting lanes and gardens around Glasgow, etc.

Ephyra porata is not very often met with, though occurring in woods in many parts of the district.

Aspilates respersaria is generally distributed in heaths, etc.

Phasiane plumbaria occurs commonly in Bute, also at Carmichael in hilly districts where broom abounds, in the month of June.

Larentia multistrigaria frequents heaths near Glasgow, in February.

Of the genus *Cidaria*, the most common species are *didymata*, *montanata*, and *fluctuata*, abounding everywhere during the summer. *C. miaria* occurs in many places in Lanarkshire, but much more sparingly. *C. unidentaria* is also taken in sparing numbers. *C. munitata* frequents swampy heaths near Glasgow, but is far from common; we have met with it also near Lanark, but in quite a different sort of habitat, amongst cultivated fields, and far from heaths. In the day-time it is a very shy insect, starting off with a somewhat lofty flight on being disturbed, and not alighting till at a considerable distance.

Harpalyce fulvata is a constant inhabitant of gardens and woody places in this district during August and September. *H. ocellata* and *subtristata* are also common during the summer. *H. tristata* appears in June, but is rare; we have only met with it at Carmichael. *H. silaceata* is another scarce species, taken in woody places in Dumbartonshire, at the end of May. *H. corylata* occurs not uncommonly in some parts of Fife, but we have not noticed it elsewhere. *H. centum-notata* and *marmorata* abound in innumerable varieties in woods and hedges, from July to September.

Electra testata and *comitata* are very generally distributed through the district. *E. populata* we have only noticed on Tinto, in Lanarkshire, flying among the grassy heath, even to the highest point of elevation. *E. pyraliata* frequents woods near Lanark and the Frith of Clyde, but does not seem to be abundant.

Steganolophia prunata is somewhat local in its habits, generally found in the vicinity of gardens.

Anaitis plagiata is not uncommon in woods in Arran and Lanarkshire; we have occasionally noticed it on the wing during the day, flying about pastures.

Euthalia miata occurs sparingly in the Carmichael woods in September. *E. impluviata* is an early species, and not uncommon near Glasgow. *E. elutata* occurs at the end of summer in many beautiful varieties.

Abraxas grossulariata is common enough in gardens.

Chesias spartiata is not a common species; we have only taken it at Netherton, in the vicinity of Lanark, flying in the twilight.

Charissa operaria is somewhat scarce and local; we have only noticed it in the vicinity of Helensburgh, near the coast. Another species of this genus occurs sparingly through the district, probably *obscuraria*, but as we have not seen any but faded specimens, it may be some other species.

Thera simulata is common in fir plantations, especially those in the neighbourhood of heaths, always resting during the day among the branches. *T. variata* is also common in similar localities, both species appearing in September.

Oporabia dilutata is common in hedge-rows during the same month.

Cleora cinctaria occurs in the vicinity of Dalmally, Argyleshire, during the spring: taken by Mr. Buxton, of Manchester, to whom we are also indebted for a notice of some *Noctuae*, which we hope to insert in an appendix.

Aplocera caesiata, though by no means a common species, seems to be very generally distributed in this district, not far from the coast in Fifeshire, and near the Frith of Clyde; mostly affecting heathy places.

Lampropteryx badiata is somewhat scarce, but widely diffused in woods, etc. through this district.

Minoa chærophyllata is common near woods and pastures in July.

Eupithecia elongata, *vulgata*, and *angustata* are common in gardens and hedge-rows. *E. centaureata* is occasionally met with at Glasgow, but is by no means common.

Camptogramma bilineata and *Emmelesia turbaria* are very abundant everywhere. *E. decolorata* is not common, but is found in various localities. *E. albulata* is far from scarce in the vicinity of heaths, etc. *E. ericetata* also occurs in similar localities.

Ptychopoda dilutata and *lividata* frequent hedge-rows and gardens, and are common and widely distributed.

Acidalia remutata is abundant in woody places everywhere. *A. aversata* is equally common. *A. fumata* is much scarcer; we have only noticed it on the heathy hills of the Isle of Arran, towards the end of June.

Pæcilophasia marginata occurs rarely in woody places near the Frith of Clyde.

Venilia maculata is also rare; found in similar districts to the preceding.

Macaria liturata frequents fir plantations, but is not often met with; we have generally noticed it on the wing during the afternoon.

Pyrausta punicealis appears to be a scarce insect, as we have only observed it flitting about heath on Carmichael hill, near Lanark.

Margaritia institalis and *M. fuscalis*; *Mesographe forficalis* and *Simaethis Fabriciana*, are abundant everywhere.

Ennychia cingulata is rather local, frequenting grassy slopes in Dumbartonshire.

Hypena proboscidalis is common in many places during June and July.

In marshy places near Glasgow *Hydrocampa lemnata* is common; hovering over the duckweed. *H. potamogata* and *Nymphæata* frequent also moist places, and are widely dispersed through the district.

Pyrallis farinalis is not uncommon in outhouses, etc. in Glasgow.

Aglossa pinguinalis also occurs in similar localities in many places.

(To be Continued.)

NOTES OF A BOTANICAL STROLL IN THE NEIGHBOURHOOD OF PLYMOUTH.

NO. III.

MONDAY, May 19th.—Revisited the ground gone over on the 12th., as described in my last communication, returning by way of Hooe. Added the following plants to my list:—*Bromus mollis*, *B. commutatus*, *Trifolium repens*, *T. minus*, *Galium cruciatum*, *Carex divulsa*, *C. præcox*, *Vicia sativa*, *Ervum tetraspermum*, *Rumex acetosa*, *Lolium perenne*, *Saxifraga tridactylites*, *Aira præcox*, *Pyrus malus*. I noticed one tree of the Wild Apple, growing on a rock jutting over the sea, in the most luxuriant state of bloom—scarcely a leaf to be seen; it was one beautiful mass of roseate blossoms, and redolent of the most delicate perfume. *Geranium columbinum*, *Ranunculus acris*, *R. bulbosus*, *Fedia olitoria*, *Euphrasia officinalis*, (Eye-bright.) What a charming little flower this is! and how poetical its English name, which is derived from the circumstance of the plant possessing ophthalmic virtues! The gaudier flowers of the garden commend themselves to our notice by their larger size and brighter colours; but this unpretending daughter of Flora, enshrined in its lowly dwelling, might boast a corolla that, for richness of hue and delicacy of pencilling, would outvie the proudest denizen of the parterre. When examined by the aid of the magnifying glass, its beauty is wonderful. *Alchemilla arvensis*, *Veronica arvensis*, *Jasione montana*, *Lepidium campestre*, *Tormentilla officinalis*, *Dactylis glomerata*, *Sibthorpia Europæa*, (Cornish Money-wort.) There is an indescribable loveliness about this elegant little plant, creeping, as it does, among Moss and Lichen, by the shady side of purling brooks, and so intermatted therewith as to be almost inextricable; at least when torn from its parent beds, a quantity of extraneous matters come away with it, which tend to detract from the beauty of the plant; so that to be thoroughly admired, it must be viewed while undisturbed in its native haunts. I am at this moment rapt in delight, as with my “mind’s eye” I gaze upon it trailing there, with its light green long-stalked leaves, round and notched, and its pink-tinted minute flowers. *Lamium purpureum*.

June 5th.—*Orobanche amethystea*, a solitary specimen, found on rocks under the Hooe, Plymouth, by Mr. Bunker. This circumstance is worthy of record, as the plant had been hitherto found only in Whitsand Bay, a few miles distant, with sea intervening.

June 6th.—Having made an appointment to meet a friend at Maristow, the seat of Sir Ralph Lopes, which is situated most pleasantly on the east bank of the Tavy, about seven miles south of Tavistock, I started about nine o’clock this morning, although the clouds were lowering. I rode as far as Bickleigh Down, where I descended from the vehicle, the rain falling thickly, and went on the Down to collect *Viola lactea*, Smith. I gathered a goodly number of specimens; and found, on laying them in paper, that I not only had this plant, named by Thore *V. lancifolia*, but the true *V.*

canina of Linnæus, not the plant improperly so-called in my first paper, the correct name of which is *V. sylvatica*, Fries; as well as a form intermediate between the two; so that, as Babington has it in the third edition of his excellent "Manual of British Botany," *V. lactea*, Sm., E. B. 445, is in all probability a variety only of *V. canina*, L. These violets grow intermixed, on heathy ground, among Furze and other plants which comparatively affect dry situations. I mention this circumstance in consequence of finding, in the work just referred to, that "turf bogs" are named as the habitat of *V. lancifolia*; and supposing that it might hence be inferred that the plant should be sought only in such a situation. Associated with the Violets, I found *Plantago lanceolata*, *Carex speirostachya*, *C. panicea*, and *C. binervis*, as well as *Veronica officinalis*, and other plants whose names have before been introduced into these papers. In hedges of the road, between Jump and Roborough Down, *Hieracium pilosella* was abundant, in common with many other flowers before noted. On Roborough Down *Pedicularis sylvatica* was unfolding its large rose-coloured flowers, which in some dry spots are all that can be seen, the plants being so stunted that the stem and leaves are scarcely observable. Straggling over all parts of the common, was *Galium saxatile*; and, in the hedges, the majestic Foxglove, (*Digitalis purpurea*,) was rearing its purple bells.

After passing the lodge, there is a walk of upwards of two miles before Maristow is reached; and the road is, for a great portion of the way, lined on both sides with various trees of noble stature. In the grounds of Maristow I found *Bunium flexuosum*, *Sanicula Europæa* abundant; *Aquilegia vulgaris* very plentiful, and, to all appearance, truly wild; for not only within the boundaries of the estate, but in the adjacent lanes, it grew freely. *Lysimachia nemorum*: what a bright little earth-star this is! *Melampyrum pratense*; *Primula veris*—nearly out of flower: this is a doubtful native of Devonshire; but there was a great quantity of it here. *Allium ursinum* in extensive patches, completely whitening the woods, and sending forth an offensive strong smell of garlic; *Melica uniflora* and *Milium effusum*—two graceful grasses; *Asperula odorata*, compensating by its grateful odour for the disagreeable garlic; and then came in abundance that beautiful labiate plant, the *Melittis melissophyllum*, with its large handsome flowers; *Geum urbanum*; the bright blue *Anchusa sempervirens*; and in an orchard the finest example I ever saw of the *Silybum Marianum*, (the Virgin Mary's Thistle.)

At Lophill, a small village adjacent, I observed in flower on the road-sides, or in the hedges, *Cotyledon umbilicus*, *Anthriscus vulgaris*, *Viburnum Opulus*, *Lithospermum officinale*, *Urtica dioica*, *Chelidonium majus*, *Sambucus nigra*, *Solanum dulcamara*, *Barbarea vulgaris*; also *Sedum telephium*, (inflorescence undeveloped;) in the interstices of the walls and among loose stones on the banks of the river within tide range, *Cochlearia Anglica*; and by a mill-pond, or in marshy ground adjoining, *Ranunculus sceleratus*, *Oenanthe crocata*, *Veronica beccabunga*, and *Lychnis Flos-Cuculi*: here also is a fine colony of

Althæa officinalis, but not at this date in flower.

On my homeward walk I noted in addition *Potentilla anserina*, *Malva sylvestris*, and *Hypochaeris radicata*.

ISAIAH W. N. KEYS.

Plymouth, July 12th., 1851.

ARRIVAL OF MIGRATORY BIRDS IN THE NEIGHBOURHOOD OF BLACKHEATH, KENT. 1851.

BY H. J. C.

NAME.	DATE.	DIRECTION OF WIND.
Chiff-Chaff,	March 24,	N. W.
Wheatear,	" 30,	N. W.
Redstart,	April 15,	N. W.
*Nightingale,	* " 16,	S. E. and S.
Whinchat,	" 16,	S. E. and S.
Meadow Pipit,	" 17,	E. S. E.
Yellow Willow Wren,	" 18,	S. W.
Wryneck,	" 19,	W. S. W.
Swallow,	" 19,	W. S. W.
Martin,	" 19,	W. S. W.
Whitethroat,	" 20,	S. W.
Blackcap,	" 22,	S. E. and S. W.

I have omitted in the above list several of those birds that are seldom seen in this populated locality, such as the Cuckoo and others, thinking that if I did, my dates might only mislead.

June 12th., 1851.

THE OCCURRENCE OF A HERD OF PORPOISES, (*DELPHINUS PHOCÆNA*,) AT LAIRA.

BY R. A. JULIAN, ESQ., JUN.

On Friday morning, August 1st., a stone-cutter of the Granite works came to me with the intelligence that seven or eight Porpoises, which had come up Laira on the previous night at eleven o'clock, had remained there in a deep pit, just above the iron bridge, during low water, at about three a.m., and were at that time, (ten a.m.) to be seen sporting and rolling about just above Saltram-point. I immediately went afloat, and with the aid of three other boats, was enabled by shouting and splashing to deter the Porpoises from going down with the tide, until about one o'clock, when the water had so far receded that the depth under the bridge did not admit of their passing until the tide again flowed. The force of boats was now considerably augmented, and

* On this day, at about noon, the wind changed from N. W. to S. E., and then S.; and the temperature rose about 10° higher than it had been previously.

spectators and shooters crowded the bridge and neighbouring quays with every description of fire-arms that could be obtained at the moment. The word was now given to row up in line, and commence the attack—bullets, marbles, and shot, flew about, thick as hail; and as often as one took effect, it was followed by loud cheers, until up turned one of the largest Porpoises in its last struggle, which, amidst renewed cheers and the aid of an harpoon, manufactured by an ingenious blacksmith near the spot for the occasion, was towed ashore. Hostilities were now recommenced, and as often as any of these monsters showed their dorsal fins and huge backs above water, they disappeared as quickly, after receiving two or three additional bullets; when the returning tide put an end to our further sport, but not until two more had been killed and landed. The others took advantage of the flow of water, and made their escape.

Their length was as follows:—First, eleven feet two inches; second, eleven feet one inch; third, ten feet one inch. The weight of number 2 was within a few pounds of eight cwt. In descriptions of these animals by Sir William Jardine, and many other authors, the length is stated at usually four to six or rarely eight feet long. I am informed another Porpoise was picked up dead the day following near Sutton Pool: no doubt one wounded on *Laira*.

Laira House, Plymouth, August 25th., 1851.

CHEAP METHOD OF MOUNTING MICROSCOPIC OBJECTS.

BY J. B. D.

THE ordinary way of mounting microscopic objects is to procure slips of glass, generally about three inches by one, and on them form cells for *wet objects*, or merely cover *dry objects*, with another slip, either of the same size, or a very small piece of what is termed *thin glass*, cemented with gold size or Canada balsam. A want has been felt of a cheap method for putting up the commoner and less delicate objects, and, if possible, to supply that desideratum is my aim. Pieces of thin card-board are cut into the size required for slides, and with a punch, a hole is driven in the centre of each, say half-an-inch in diameter. The object is then to be carefully placed between two very thin and equal pieces of *mica*—to be had of any Philosophical Instrument Vender,—which are cemented at their edges by gold-size. Two of the cut cards are now taken, and one side of each, covered with a *thin coating* of glue; the mica is laid on one, so as to bring the object as nearly in the centre of the hole as possible, and the other placed over it, and gently pressed between books until the glue has hardened, and thus secured the object in its place. The name should then be written on the slide, which is now ready for laying away for future use.

It is not proposed to put up the finer objects by this method, but for

most of those used in class demonstration, it is quite applicable; and besides saving expense in first cost, lessens their liability to damage, from falls, etc.

The writer has beside him at this moment slides of this nature put up two years ago, consisting of sections of wood, stomates, pollen grains, granular hairs, colour cells, starch granules, and even a beautiful spiral cell. For wings, limbs, and scales of insects, nothing could be better.

Edinburgh, Sept. 4th., 1851.

Miscellaneous Notices.

Rapacity of the Peregrine, (Falcon Peregrinus.)—A fine specimen of this noble bird was obtained by my friend J. C. Dale, Esq., of Glanvilles Wootton, Dorset, under rather singular circumstances, in the winter of 1839-40. It was observed by a countryman to strike down a Wood Pigeon into a bush; he immediately ran to the spot, and succeeded in capturing the Falcon alive, before it had time to recover itself, and along with it its unfortunate quarry. The Falcon was stuffed, but its victim was reserved for a less noble, though still useful end.—B. R. M.

Rare Birds at Woburn.—A fine male specimen of the Gray Shrike, (*Lanius excubitor*,) was shot on Westoning Manor, near Woburn, on February 10th., 1851; this being a very rare bird in Bedfordshire. The Thick Knee, or Norfolk Plover, (*Edicnemus crepitans*,) was caught near Woburn, on March 29th., it having been previously wounded.—G. B. CLARKE, Woburn, Bedfordshire, July 10th., 1851.

I heard the Nightjar, (*Caprimulgus Europæus*,) on the 12th. inst. On the 11th. I saw a specimen of the Great Gray Shrike, (*Lanius excubitor*,) in a field near the Railway Station, where I understand they breed every year.—S. HANNAFORD, JUN., Totnes, May 17th., 1851.

Extraordinary Nest of the Common Wren, (Troglodytes Europæus.)—In a garden belonging to the Rev. F. H. Hele, of Littlehempston, near Totnes, a pair of Wrens have this year built their nest in a plum tree against the wall, about four feet from the ground: it is composed entirely of small pieces of decomposed thatch from an adjoining barn, and is of a very large size. The hole, which is in the front of the nest, is beautifully lined round with green moss; the neatness of which forms a singular contrast to the rough unshapen exterior. The bottom, top, and sides are lined with moss and horsehair, but the back part is not lined at all, leaving the rough wall uncovered. There is no bird, perhaps, which varies so much in the materials of which it forms its nest, as the Wren. Rennie mentions one, built near a school-room, partly lined with quill scrapings; and Montagu says, "The materials of the nest are generally adapted to the place: if built against the side of a hayrick, it is composed of hay: if against the side of a tree covered with white moss, it is made of that material; and with green moss if against a tree covered with the same, or in a bank." And Yarrell adds "Thus instinct directs it for security;" but in this instance, there was an ample choice of materials, much more suitable, if security was the object; for not only was the dirty black mass quite unconcealed and insecure, but the ground underneath was covered with pieces of the unused thatch. Indeed I am at a loss to account for such strange materials being used, but am inclined to believe with Mr. Rennie, that they vary "according to the experience of the birds, and their different notions of comfort."—Idem.

Predacious habit of the Rook.—As one of the keepers in the evergreens, Woburn Park, was sitting at breakfast on June 22nd., he observed a Rook, (*Corvus frugilegus*,) suddenly dart down amongst the fern on the hill opposite to the log cottage in which he lives, and thinking there was something amiss, he went to the place; and as he approached, several Rooks flew away; he then found a Partridge's nest, with about thirteen or fourteen eggs, and the old one dead about a yard or two from the nest where she had been no doubt killed by a Fox, several of the eggs were sucked, and one of the Rooks flew away with an egg on the end of its bill. When the keeper knew what the Rooks had been doing, he set a trap close to the nest, and succeeded in trapping one of the Rooks in a short space of time, which he killed and brought home with

him, and shewed it to me. I was not aware before this that the Rook would suck eggs.—G. B. CLARKE, Woburn, Beds., June 23rd., 1851.

Occurrence of the Dotterel, (*Charadrius morinellus*.)—A pair of these birds were brought to me by a farmer, who shot them at Bottisham-fen.—R. A. JULIAN, JUN., May 28th., 1851.

A White Missel Thrush, (*Turdus viscivorus*), was shot on Tuesday last, July 8th., by Mr. J. A. HAMES, gardener, of Heavitree, near Exeter, in his garden adjoining the turnpike-road. It is quite a young bird, of the purest white, with light yellow legs and beak. CALEB WEEKS, Torquay, July 16th., 1851.

Parental attachment in the Chaffinch, (*Fringilla cœlebs*.)—We hear much of the attachment of birds for their young, and the various stratagems they resort to to guard them from danger, but I do not think I have ever seen the affection of any bird carried to such an extent, as in the following instance:—A few springs back, a Hen Chaffinch was found in a village in this neighbourhood, actually frozen to death on her nest. Now I can attribute this to nothing but the love the poor bird had for her eggs. The Rev. R. BARRAS, to whom the nest was brought, and in whose possession it now is, told me that the preceding winter had not been very severe.—R. P. C.

Cinereous Shearwater, (*Puffinus cinereus*.)—I obtained a live specimen of this rare bird on the 26th. of July, of a boy who caught it in the mouth of the River Ouse, near Lynn: on dissection it proved to be a male. The account he gave was that, as he was returning to Lynn in a fishing-boat, he saw the bird sleeping on the water, and struck it with his oar; this was on the afternoon of the 25th. It lived with me until the morning of the 31st., when I found it dead, most probably from injuries received from the oar of the boy who captured it, as it was very lively, and ate readily of small fish, live shrimps, etc. The fishermen to whom I shewed it, say that they know the bird, and describe it as being exceedingly swift on the wing, feeding on the excrement or half-digested food of other birds, which it chases until they regurgitate. They evidently mistake it for the Skua Gull, (*Lestris cataractes*.) While I kept it I never once saw it attempt to fly, and it walked very little indeed; I noticed no desire to hide itself. It slept all day with its head turned back, and bill buried in its feathers, but became more lively after sunset. I never heard of one of these birds being captured in this neighbourhood before. The colour of the plumage of this bird was the same as that of the dark-coloured bird described by Yarrell, (vol. 3, page 629.) The length was seventeen inches; wing, from anterior bend, twelve inches; bill, one inch and three-quarters; tubular portion, five-eighths of an inch; tarsus, two inches; middle toe, including claw, two inches and a half. This specimen is now in the Lynn Museum.—T. SOUTHWELL, Lynn, Norfolk, August 2nd., 1851.

The Tree Sparrow, (*Passer montanus*.)—About two years ago I found the Tree Sparrow breeding in South Wootton Park, near Lynn, since which time I have found it rather abundant in that neighbourhood. The nests are built in holes in the heads of decayed pollard Willows, and are composed of roots and grass, lined with feathers. The eggs, from five to six in number, vary much in their markings, some having separate and distinct longitudinal blotches of a very fine brown colour; others very closely resemble the eggs of the Titlark. I have also several intermediate varieties. The dark variety is the most frequent. In 1850, and again this summer, (May 22nd.,) I found a nest in a crack in the underside of an Oak tree, which inclines over a ditch. This is the only instance I have met with of their building in any other tree than the Willow.—Idem.

The following note occurs in the margin of a copy of the Ornithology of Ulysses Aldrovandus, in my possession, in the hand-writing of the late Mr. Sole, the Botanist, once an Apothecary in Bath:—"Certhia familiaris, Linn: Creeper. I suppose this is what is meant at Bath, and in Wilts. by Nettle Creeper; and is, I believe, my White Throat, (Eliz.) It is an excellent warbler, and in my Botanic garden I have often sat in the arbour with the greatest delight to hear him respond to the Nightingale, and even silence him. The Nightingale never sings in sight: on the contrary, this bird sings with most pleasure if greatly admired and looked at. (*Unde forsam familiaris dicta.*")—R. WILBRAHAM FALCONER, M.D., Bath.

The hook upon which a Linnet's cage was suspended, giving way, caused the fracture of the right leg of the little prisoner. Splints were applied for some time, but no union of the bones took place, when the limb was amputated above the knee; after which the little patient survived

several years as merry and happy a songster as any of its brethren.—RICHARD NEALE, M.R.C.S., Fazeley, Staffordshire, May 29th., 1851.

The Spoonbill, (*Platalea leucorodia*), in *Yorkshire*.—We have much pleasure in recording the capture of a very beautiful specimen of the Spoonbill, which was shot by Charles Vaux, servant to Mr. G. Milner, of Wilberfoss, near York, on the evening of the 2nd. of August last. It was an adult female, in fine plumage, and had alighted on the pond in the middle of a flock of tame ducks in the dusk of the evening. It was stuffed by Mr. Graham, of this city, who shewed it to us while yet warm.—B. R. M.

Note on the Puffin, (*Fratercula arctica*).—For several winters in succession I have met with this bird in December and January at Tyne Sands, in East-Lothian. The specimens I found were apparently young birds of the season, and probably helpless, so far as migration was concerned—a suspicion sometimes confirmed by one or two dead birds being cast ashore after storms, in a recent state. Guillemots, Razor-bills, and Solan Geese often share the same fate: the latter I have occasionally found in winter, but the birds were young ones; and regarding both this species and the Puffin, I would suggest that some of the late-fledged broods are not matured enough to leave the breeding stations along with the old and stronger birds, and do not migrate at all. The locality I have spoken of is distant only ten miles from the Bass Rock, where they are bred in abundance.—R. GRAY.

The Leaf-cutting Bee.—Some three or four years ago, when in a printing-office in this town, I observed a singular situation for the nest of a Leaf-cutting Bee. It was in the groove usually cut out from the bottom of a horizontally-sliding window, but which is generally filled by a corresponding slip nailed to the window bottom. In this case the bottom slip had been broken away, so that there was a square orifice of about half-an-inch—the full width of the window. Observing a Bee fly in one day when the window was partially open, (at which time only access could be had,) with a part of a leaf, I examined the bottom of the window, and there found the nest, of about four inches in length, and composed of pieces of rose leaves curled round and tucked one into another, until of the proper length and thickness. Last autumn I again detected a Bee going into another window in the same room, which was similarly circumstanced to the first-named, and again the nest was found, enveloping this time the larva, with a goodly supply of a rather fetid, clammy substance; intended, I suppose, for its winter nourishment.—J. A. ROBINSON, Southport, Lancashire, August 8th, 1851.

Bee Trees in the New Forest, Hants, in the time of Queen Elizabeth.—Extract from a decree of the Court of Exchequer, June 19th., 23th. of Elizabeth. "It is likewise ordered that the said keepers in the New Forest, shall have each of them, in his several walk, only such wind-fall trees and boughs, where no part of the root is upturned and inbowes also, only so much thereof as the Bees do light on, and the honey that shall be found in the tree, but not to cut away any main bough or tree by colour thereof." In the summer of 1844, close to the New Forest, there was a hollow tree in which honey was found; the amount of which was "a pail full."—II. R.

Capture of Leptinus testaceus, near Paisley.—About the end of September, 1850, we captured one specimen of this rare Beetle, in rather a singular way. I had been removing the carcase of a cat in a vasculum, from Cart Side to Paisley Moss, for the purpose of attracting carrion-feeding Beetles; and returned with some small branches of birch in it, for feeding caterpillars. A number of days afterwards, my brother observed the little creature making its escape from a tuft of the cat's hair, which was still attached to the lid of the vasculum. Is it an animal, or a vegetable feeder?—MORRIS YOUNG, 7, Old Sneddon Street, Paisley, August 22nd., 1851.

Capture of Rhinomacer attelaboides, near Paisley.—On the 3rd. of May we captured three specimens of this rare Beetle, by beating fir trees at Paisley Moss.—Idem.

Capture of Acidota rufa, near Paisley.—On the 3rd. of May we captured upwards of a dozen specimens of *Acidota rufa* at Paisley Moss, by shaking roots of grass.—Idem.

The Flea.—A Flea from a Dog, which I had placed in a pair of spring forceps for microscopical examination, lived twelve days so confined. It was remarkably vigorous after eight or nine days.—J. A. ROBINSON, Southport, Lancashire, May 8th., 1851.

Occurrence of Nika edulis, near Falmouth.--My friend, Dr. Vigurs, found in a pint of boiled Prawns, taken in a shrimper's net, at Hilford, six miles from Falmouth, on the 14th. of May, fourteen fine female specimens of the "rare" *Nika edulis*. Twelve of them were loaded with ova.--W. P. COCKS, Falmouth, July 19th., 1851.

These plants do not occur in the Flora Devoniensis, (Jones and Kingston, 1820.)--Aconitum napellus--Wolf's Bane, or Monk's Hood. Found near brook at Bidwell and banks of River Dart, near Staventon Bridge.--Flowers in May. *Anemone pulsatilla*--Pasque flower. Found near River Dart, about a mile above Hood Cottages.--Flowers in April. *Asarum Europæum*--Common Asarabacca. Found near Truastreet, by William Gillard, Esq.--Flowers in May. *Leucojum æstivum*--Summer Snowflake. Found in boggy marsh near Totties Weir, growing amongst willows.--S. HANNAFORD, JUN., Totnes, Devon., May 24th., 1851.

Reviews.

Historia Naturalis Orcadensis. Zoology. Part I. Being a Catalogue of the Mammalia and Birds hitherto observed in the Orkney Islands. By W. B. BAIKIE, M. D., AND ROBERT HEDDLE. Edinburgh: Printed by J. and W. Patterson, 52, Bristo Street. 1848. 8vo., p. p. 104.

THE value of carefully compiled local Faunas and Floras, is now so generally admitted by naturalists, that we feel we are rendering a service to our readers in calling their attention to the above catalogue, which we regret has only lately fallen under our notice. The compilers have carefully given the authorities for each species introduced into this list, which is a larger one both of mammalia and birds than we should have expected. Various Faunas of Orkney, by other writers, have assisted in rendering this the most complete hitherto given to the public. It would occupy more space than we can well afford to give many extracts; we shall therefore content ourselves with laying before our readers one taken at random from page 88. It is a fair example of the general style and amount of the remarks on each species:—

"Great Auk, (*Alca impennis*.) This bird has not visited Orkney for many years. One was seen off Fair Isle, in June 1798. A pair bred in Papa Westray for several years; where they were named the King and Queen of the Auks. Shortly after Mr. Bullock's visit to Orkney, in 1813, one of these birds was shot and sent to him; and since that time the Great Auk has apparently forsaken our islands."

The Authors, in the preface, express a wish for corrections or additions, and we shall feel much gratification if any such be afforded them in consequence of this notice, in the pages of "The Naturalist."

A Manual of Botany: being an Introduction to the study of the Structure, Physiology, and Classification of Plants. By JOHN HUTTON BALFOUR, M. D., F. L. S., F. R. S. E., Professor of Medicine and Botany in the University of Edinburgh. Second Edition. Forming vol. xiii of the Cabinet Edition of the Encyclopædia Metropolitana. London: GRIFFIN AND Co., 1851.

ANY person reading the above title-page, and knowing the high character of Dr. Balfour as a botanist, would be disposed to think that he had got hold

of a trusty and faithful guide in commencing a study of Botany. We much regret however, that we are unable to accord to the work the merit of being an index to Dr. Balfour's botanical opinions. The first edition came out under his sanction, and was generally considered a valuable addition to the library of the student in Botany. The present edition has however undergone many changes, and these of such a nature, as to induce the Professor to announce from his professorial chair that this edition was not edited nor corrected by him; and that he was in no way answerable for it. It seems that the book has been re-edited, and *considerably altered* by some one employed by the publishers, who has by no means represented Dr. Balfour's views. We allude to the subject but thus briefly, with a view to prevent any of our friends, who may purchase *this edition*, thinking they are by so doing, obtaining the results of Professor Balfour's Botanical studies and opinions.

Proceedings of Societies.

Ayrshire Naturalists' Club.—The first anniversary meeting of this Club took place at Ayr, on the 25th. of June, when Major Martin, of Ardrossan, was chosen President for the year, in the room of the Rev. Dr. Landsborough, their President during the last year. After transacting some business, they set out to explore the coast towards Dunure. They passed "Alloway's auld haunted Kirk;" Burns' birth-place and monument; and "The banks and braes o' bonnie Doon;" and then bore down on the shore, and in a little while fell in with a *Pholas*, which on extracting from the perforation it had formed in the rock, they were delighted to find was the rare and beautiful *Pholas papyracea*, new to Scotland. The shore is a rich one for Algologists, but, on this occasion, nothing rare was found. Several specimens of *Alaria esculenta* and *Jania rubens* were got, and the stones were occasionally spotted with *Hildenbrandtia rubra*. The very rare *Lyngbya Thompsoni* was obtained in a fresh-water stream. The bold headlands afforded some good specimens of phenogamous plants, such as *Sedum telephium*, *Thalictrum minus*, *Eupatorium cannabinum*, *Cotyledon umbilicus*, and *Lithospermum maritimum*. Agates are plentiful on the shore, and several specimens of *Olivinite* were found. But the most interesting discovery was made as they approached Dunure; one of the party examining a stone that had fallen from the cliff, saw embedded in it what, at first, was thought a shell; but on hammering it out, to their great joy, they found that it was the scale of an old world fish. Several were found, some of them about an inch in length, and three-quarters of an inch in breadth. They were curiously wrinkled on the outer side, and the whole had a coating resembling chalcedony. They were the scales of the *Holoptychius* of the upper old Red Sandstone, akin to, if not identical with the *H. giganteus* of Agassiz. The party were much pleased with their excursion.

The Querist.

The Nightingale, (*Sylvia lusciniæ*).—Is it true that this songster will not frequent, or pour forth its delicious notes, save in spots where streams, lakes, or ornamental waters are to be found?—W. F.

We request information from any of our sea-coast friends respecting the occurrence of the Puffin, or any of our summer Sea-birds, during the winter months. It is a subject of much interest, and, we believe, much may be learned by extended and general observations.—B. R. M.

We shall feel greatly obliged to our various ornithological contributors if they will send us information as to the time of the departure of the Cuckoo from this country, specifying, when possible, the state of the bird, as to age.—B. R. M.

THE NOTCH-EARED BAT, (*VESPERTILIO EMARGINATUS*.)

BY W. P. COCKS, ESQ.

THREE months absence from my home has been the cause of my not correcting an error in the "Falmouth List" sooner. The *Vespertilio emarginatus* is a very rare visitant in our locality; and during the last eight years I have only examined two specimens. The first specimen was brought to me in the year 1845; and was said to have been shot by a person of the name of Symons, in Love, or Fox's lane, Woodlane, Parish of Budock. It measured from tip of nose to rump, two inches and three-eighths; tail, seven-eighths of an inch; wings, when expanded, measured nine inches. The ears were erect and deeply notched on the outer edge; tragus, long, styliform; fur, chestnut brown on the back and sides—paler beneath. The second was shot by a young sportsman in the year 1847, Panscoth lane, Budock Parish. Length, one inch and three-quarters; tail, five-eighths and one-sixteenth of an inch; wings, eight inches and a half; fur, on the back and sides, light reddish brown; abdominal and inguinal regions, whitish. The ears were notched on the outer edge, but not so deeply as in the first specimen.



The *Mus intermedius*; I consider it to be nothing more than a dwarfish variety of *Mus decumanus*.

Falmouth, August 26th., 1851.

EYES OF THE COMMON MOLE, (*TALPA VULGARIS*.)

BY S. HANNAFORD, ESQ., JUN.

I WAS much surprised on reading Mr. Smee's "Instinct and Reason," to observe the following:—"There is a common animal in the fields, which being almost exclusively in the dark, in subterraneous passages, has no eyes. This creature is the Sleek-skinned Mole. It is a common proverb to speak of a person as blind as a mole, but it is equally common to hear the casual observer speak of the error of the proverb; because on turning aside the hairs on each side of the head, a little black tubercle appears, which is called an eye. These black tubercles have no optical contrivance, and a distinguished physiologist has shewn that the little tubercle is not supplied by the optic nerve. In consequence of this creature having no eyeballs, there are no sockets in the skull to receive the eyeballs."—*Instinct and Reason*, page 26.

This was so much at variance with my own ideas on the matter, that I immediately consulted all the works on Natural History in my possession, but did not find a single corroboration of Mr. Smee's assertion. I give the following

extracts, as it is a pity that any such statement, if unfounded, should remain unrefuted:—

"The smallness of the eyes is to this animal a peculiar happiness: a small degree of vision is sufficient for an animal ever destined to live underground: had these organs been larger, they would have been perpetually liable to injuries, by the earth falling into them; but nature, to prevent that inconvenience, hath not only made them very small, but also covered them very closely with fur. Anatomists mention, besides these, a third very wonderful contrivance for their security, and inform us that each eye is furnished with a certain muscle, by which the animal has the power of withdrawing or exerting them, according to its exigencies.—*Pennant's British Zoology*, vol. 1, page 130, 8vo. ed.

"The mole, though not blind, has eyes so small and so covered, that it can have little benefit from the sense of seeing."—*Buffon*, vol. 5, page 358.

"The eyes are so small, and so hidden beneath the hair, that their existence even was denied for a while. They have been ascertained, however, to be tolerably sharp-sighted."—*Cuvier*.

"The actual existence of a visual organ, though in an imperfect state of development, is well known; and the open condition of the eyelids, in the common species at least, would lead to the conclusion that this sense is not absolutely wanting to it."—*Bell's Quadrupeds*.

HABITAT, NIDIFICATION, INCUBATION, ETC., OF THE BLACK-HEADED GULL, (*LARUS RIDIBUNDUS*.)

BY MR. W. D. BALSHAW.

WILLUGHBY mentions a colony of the Black-Headed Gulls, (*Larus ridibundus*), which yearly build and breed at Norbury, in Staffordshire, on an island in the middle of a great pool. A similar one occurs about two miles from the shore of Morecombe Bay, and four from the east bank of the River Wyre, on a damp marshy piece of ground, called Pilling Moss, the property of T. Gardner Esq., of this town.

Having selected a beautiful afternoon in the early part of May, we crossed the river, and bent our steps towards the spot to which we had been directed, having been kindly favoured by the proprietor with an order to visit the colony whenever we might feel inclined. The day was all that could have been desired for our excursion, the temperature of the atmosphere being moderate; the caroling of the Larks as they rose from their grassy bed, and the delightful melody poured forth by other songsters, together with all the sweet influences of nature which combine on a spring day to please and to delight, would have rendered gladsome hearts less light than ours.

From observation and inquiry of the keeper, we gathered the following facts, which I hope may prove not uninteresting to your readers.

In the beginning of April, many thousands of these birds annually resort

to the place I have mentioned;—in such numbers do they come, that more than an acre of ground is so thickly covered with their nests, that it requires the utmost caution to avoid crushing the eggs at every step; and yet it is remarkable that this spot is frequented only by this particular species—no other sea-fowl being observable in the neighbourhood of the colony: indeed, the only feathered inhabitants of the heath over which we passed, that we saw, were a brace of Grouse.

The Gulls generally commence making their nests about the middle of the month, (April,) but some do not begin till rather later, and the keeper mentioned a very remarkable circumstance connected with those which build first. He said that those pairs which commence the earliest in the season invariably construct their nests at the north-west corner of the morass, and those which delay nidification till the season is more advanced, lay their eggs further to the south-east. Our own observation also confirmed this, at first sight improbable assertion; for we found that while the nests at the north-west had their full complement of eggs, those in an opposite direction contained mostly only one egg, and some none at all;—in the former the eggs had been much sat upon, while in the latter incubation had evidently not commenced.

These birds build but very indifferent nests; they consist only of a few dried rushes or straws placed upon the bare ground, on which their eggs are laid. These are usually three in number, of a dark green or olive colour, marked with spots and blotches of deep brown. The colouring varies very much in different specimens, some being of a much lighter tint than others, and having few spots or marks on them. In one or two of the nests we found as many as four eggs, though it is very seldom that more than three are laid. While we were upon the spot the birds continued hovering over our heads, making a loud screaming noise, indicative of their displeasure at our intrusion; and as soon as we had moved a very few yards away, those that were sitting returned to their posts, so anxious were they for the preservation of their eggs.

We were informed that it is about twenty years since they took possession of this place as their summer resort. Towards the end of July, when the young are ready to fly, the birds leave the Moss, and betake themselves to the sea-shore, where they procure their food, which consists principally of insects, worms, spawn, fry, and small fishes. During the breeding season, I believe, they exist chiefly upon what they can obtain from the fields. For some miles round they may be seen covering any piece of fresh turned-up land, and often alighting, as I myself observed, within three or four feet of the heels of the ploughman engaged in tilling the ground. It is indeed a very interesting sight to see how actively and gracefully these truly beautiful Gulls run up and down the newly-made furrows, in search of what nature has taught them to regard as food for themselves and their young. Mr. Gardner is annually reclaiming many acres of the moss-land, and he says that after having cut through six or seven feet of peat, in which trees of various species

are found, the White Birch, (*Betula alba*), being the most abundant, a layer of clay is met with; and below that a stratum of sand, embedded in which are discovered many of the heads and antlers of deer. Does not this evidently show that on this spot there has existed at one time an extensive forest, abounding in game, though now for many miles round the country presents a very barren appearance? Indeed, it is one extensive flat of peat bogs in all directions. It may in conclusion be remarked, that the few trees in the neighbourhood are very much stunted in their growth, owing to the strong winds from the sea. This is very noticeable, even as far as Garstang, a town nearly eleven miles from the bay.

Fleetwood, Lancashire, September 14th., 1851.

NATURALIZATION OF FOREIGN BIRDS IN THIS COUNTRY.

BY HENRY TAYLOR, ESQ.

UNDER the above title you did me the favour to insert a communication at page 89, in which I suggested the desirableness and practicability of introducing into our woods certain of the foreign song birds, now only kept in cages or aviaries by bird-fanciers. My remarks were especially directed to that beautiful songster, the *Loxia cardinalis*, or Virginian Nightingale. A reference to my former article will shew that a pair of these birds was established this spring in my conservatory, in company with several other kinds of the feathered tribe. My desire was to become acquainted with their habits, as well as to ascertain whether the Virginian Nightingales would breed under such circumstances. With your permission, I will detail the result of my experience.

It was apparent in the month of May that the birds had paired, and my attention was directed to the requisites for building. After trying various kinds of receptacles, attended with much loss of time, I found their instincts led them to give a preference to some dwarf box trees in the conservatory, growing in pots.* In one of these a little hay was placed, which the hen eagerly adopted as the foundation of a nest. Materials of various kinds were scattered about, but that which found the greatest favour was *paper* in small pieces, these probably being the nearest approach to dried leaves. A window opens from the conservatory to my sitting-room, into which both birds were always pleased to enter when opportunity was given, and where an *old newspaper* was, to the female, particularly attractive. In rather a loose kind of nest, lined with a few twigs stolen from a broom, an egg was laid on the 20th. of July, about the size of a Blackbird's; in colour what I might call a dirty white, freckled with light brown spots. To this, I think, another was added; although of the fact I could not be certain, for the nest imme-

* It is worth while to say that these are the favourite roosting-places of the smaller and more tender birds. In winter they afford the best protection from cold currents of air, whilst at the proper season nests are frequently built in them.

diately became an object of attraction to a host of the smaller birds, the contents falling a prey to their mischievous propensities. I captured the offending ringleaders, and procured, for greater privacy, a much larger box bush, inserting, as before, some hay in its centre, nearly impervious to exterior view. A few days only elapsed before a second nest was here in progress, the chief material, as before, being bits of paper, but more scientifically lined than the original one, with layers of hay and strips of bass matting. Indeed, the two nests differed extremely in construction as well as size. On the 29th. of July an egg was laid, followed by a second, after which the hen rarely left the nest, except during very short periods, for food. For this she usually came into the parlour, particularly at the breakfast hour, to partake of some chopped egg, or bread and butter, with great familiarity. Nothing more delighted her mate than this opening of the window, which he requited with incessant singing, in any part of the room. A more attached pair cannot be conceived. Now and then his song would be acknowledged by a succession of *jugs* from the female on her nest. On the 14th. of August hatching took place. To my extreme regret, the parents paid but little attention to their infant brood, which soon perished. Occasionally the hen went to them in apparent distress, but something was wrong in the article of food. Of the latter, various kinds, animal and vegetable, were placed for choice; still the *one thing needful* was evidently missing. I suspect that insect aliment of some sort is indispensable; for flies, moths, etc., are at all times pursued, and generally successfully, by these birds, if chance lead such into the conservatory or parlour. A third nest was subsequently in progress, but some cold weather ensued, and from the lateness of the season, I did not encourage farther proceedings. The birds are still in song.

September 8th., 1851.

A BOTANICAL RAMBLE ON THE BANKS OF THE DART.

BY S. HANNAFORD, ESQ., JUN.

"'Twas that delightful season when the broom,
Full-flowered, and visible on every steep,
Along the copses runs in veins of gold."

WORDSWORTH.

THERE is perhaps no county in England with so great a variety of wild flowers as Devonshire, particularly at this season of the year, when almost all the spring flowers are in bloom. A few days since, I took a quiet ramble by the banks of the River Dart, from Totnes to Hood, a distance of about four miles, and was struck with the number of new specimens which had opened within the last month; I should say from fifty to sixty at least. I trust the results of my stroll may not prove uninteresting to some of your readers.

On starting in a field opposite Totnes Weir, I found the Yellow Rattle, (*Rhinanthus crista-galli*;) with its purplish streaked stem and yellow flowers; deriving its name from the seeds, when ripe, rattling in the large seed-vessel; the Purple Trefoil, (*Trifolium pratense*;) with here and there the bright yellow flowers of the Silverweed, (*Potentilla anserina*;) and Spring Cinquefoil, (*Potentilla verna*;) scarcely to be distinguished one from the other, but by the digitate leaves of the latter. By a ditch side, a little way on, the white flowers of the Common Watercress, (*Nasturtium officinale*;) and in the same place, the Ragged Robin, (*Lychnis flos-cuculi*;) with its delicate rose-coloured jagged petals; the Cuckoo flower, too, (*Cardamine pratensis*;) of various hues, from a delicate lilac to a bright pink—

“By the meadow trenches blow the faint sweet Cuckoo flowers.”

TENNYSON.

and just coming into bloom, the Wild Angelica, (*Angelica sylvestris*;) and, as Carrington says—

“That old favourite—the daisy—born
By millions, in the balmy, vernal morn.”

Onwards I went to Berryman's marsh, where the Early Purple Orchis, (*Orchis mascula*;) still appeared, though not so abundantly or in such beauty as it did a month since. I was tempted to turn into the pretty copse near Darlington Hill; the ground of which was covered with the blue flowers of the Wild Hyacinth, (*Hyacinthus non-scriptus*;) “Lushest Bluebell beds,” as Keats calls them; white specimens of which, by the bye, I have frequently found in woods in this neighbourhood, but much more delicate than the blue, and more resembling wax flowers. A few Wood Anemones, (*Anemone nemorosa*;) still remained, with which the ground was covered as with snow but a little time back. The greenish yellow plants of the Wood Spurge, (*Euphorbia amygdaloides*;) a common plant hereabout, and one well worthy of notice, from its flowers being enclosed in a kind of cup; the Red Campion, (*Lychnis dioica*;) its bright red flowers contrasting beautifully with the white ones of the Stitchwort, (*Stellaria holostea*;) and the Broad-leaved Garlic, (*Allium ursinum*;) commonly called *Ramsey* in Devonshire, well known on account of its disagreeable smell; and the delicate green of the numerous Ferns spread about in all directions. The hedges were filled with the Yellow Weasel Snout, (*Galeobdolon luteum*) now in great perfection, with its pale yellow flowers spotted with red—the leaves resembling those of the nettle, but very much smaller. The Hawthorn, (*Mespilus oxyacantha*) shedding its fragrance in every direction. On the copse wall I found very fine specimens of Herb Robert, (*Geranium Robertianum*;) Shining Crane's-bill, (*Geranium lucidum*;) and Jagged-leaved Crane's-bill, (*Geranium dissectum*;) Leaving the Copse, I sallied on towards Folly, and there, as I anticipated, found the water covered with the white Water Crowfoot, (*Ranunculus aquatilis*;) in great profusion, with its three-lobed floating leaves, and five hairy-like leaves immersed in the water.

This is also to be met with on the Mill Leat, near Totnes. Passing Folly Marsh, I saw the Common Snake, (*Natrix torquata*), swim from the opposite side of the Dart to the side where I stood, with its head raised gracefully above the water; which it did with great ease apparently, and crawled up the bank by my side. Here the Wood Horsetail, (*Equisetum sylvaticum*), with its fertile spike may be found, also the Earth Nut, (*Bunium flexuosum*), with its umbel of delicate white flowers, but it is very common everywhere. In all directions now the Common Bugle, (*Ajuga reptans*), is seen with its pale blue flowers, growing in the hedges a foot or more in height, but more diminutive in pastures. On the sandy soil in Folly Island, the flowers of the Wood Loosestrife, or Yellow Pimpernel, (*Lysimachia nemorum*), peep forth from amidst their delicate green leaves. Passing a corn field near North wood, I found the Common Fumitory, (*Fumaria officinalis*), "Rank fumites" as Shakspeare calls it, and the yellow flowers of the Creeping Cinquefoil, (*Potentilla reptans*) just out, not yet abundantly—

"The five-leaved grass mantling its golden cup of flowers."

And a single specimen of the Butterfly Orchis, (*Orchis bifolia*.) Before I go further, I must mention that I found a short way back the Common Currant, (*Ribes rubrum*), growing close by the water's edge. Returning to North wood, the Dog Violet, (*Viola canina*), still in great beauty—

"That queen of secrecy, the Violet."

KEATS.

The yellowish tinged flowers of the Dogwood, (*Cornus sanguinea*), and the pretty blossoms of the Maple, (*Acer campestre*), met my eye, in addition to many of those already mentioned, many of which flower in great beauty here. A short walk brought me now to Staverton Bridge—which I crossed, and on the Staverton side of the River found the Monks-hood, (*Aconitum napellus*), in bloom—a very rare flower in this neighbourhood, and which I have only met with here and by Brook side, near Bidwell Copse.—It is so well known in our gardens, that it needs no description here. Recrossing the bridge, I bent my steps over the fields by the water side to Hood, and in a field not far from Staverton found a great favourite of mine, the Common Dwarf Lousewort, (*Pedicularis sylvatica*), on marshy, sandy soil, raising its bright pink flowers just above the ground amongst the golden flowers of the Furze, (*Ulex Europæus*), not at all a common plant. Above Hood Bridge, the rocks in some damp situations were covered with the Golden Saxifrage, (*Chrysosplenium oppositifolium*), occasionally a Columbine, (*Aquilegia vulgaris*), with its drooping purple flowers was seen, a rare plant in some districts, but plentiful in all our Devonshire woods. About a mile above Hood Cottages, a most delightful part of the Dart, I discovered a short time back the Pasque Flower, (*Anemone pulsatilla*), similar in shape to the Wood Anemone, but the petals of a dull violet colour,—a scarce plant in this country.

Although rather diverging from the route laid down at starting, I will

add one more very scarce flower which I found in the marsh near Totnes Weir—the Summer Snow Flake, (*Leucojum æstivum*,) growing amidst willows. It has never been found here before I believe. It would be impossible for me to enumerate all the flowers I found in my delightful walk, but I hope this slight mention of a few of our Botanical treasures may induce others to examine for themselves, the beauties of their own county.

Totnes, June 1st., 1851.

ANOMALIES IN THE VEGETABLE KINGDOM.

BY J. B. DAVIES, ESQ.

THE interesting notice of the monstrous Earth Worm, by Mr. Edwards, in “The Naturalist” for September, has suggested to me the idea of keeping a register of the various anomalies noticed among plants by Naturalists throughout the kingdom. Acting upon the idea, I begin with a tribe which has come more within my notice of late than any other, that is, the Graminæ, and beg to send you a list of the variations I have observed among them; some of these are perfectly well known, and others less so, but all I think deserving of being recorded in a *collected form*, so as to form a nest-egg for other observers to increase from.

I am certain that I am not the only one among your readers who would be interested in such a record as I propose to keep, and if it should meet the ideas of others, I shall feel happy to contribute my mite towards the gathering together of stones, to build a correct Science of Morphology; as it is only from the possession of abundant data that we can ever hope to arrive at anything like ultimate facts.

The variations of grasses may be classed as follows:—1st.—Flowers becoming viviparous, that is producing young plants instead of seeds. 2nd.—Change in the seeds, supposed to be caused by the presence of a fungus, causing it to enlarge and become dark in colour, and known as Ergot. 3rd.—Division of a simple spike, or union of distinct ones. 4th.—Variations in the colour of the leaves, the colouring matter being absent in certain parts, causing longitudinal white lines. 5th.—Miscellaneous Sports, as extraordinary development of glumes, ligule, root, etc.

The following species have been noticed in a viviparous condition:—

Poa alpina, common on high hills in Perthshire and Forfarshire. Head large and tufted. In the Edinburgh Botanic Gardens, and Golden Acre Nursery, Edinburgh.

Festuca ovina, likewise found in mountainous districts in Scotland. Same places as above.

Aira cæspitosa, to be found in collections; forms a very gracefully drooping head. Kept up in cultivation by division of the roots. Same places as last.

I have noticed Ergot, in the following species:—

Secale cereale, Rye, very common.

Dactylis glomerata, Rare, spur short and thin, not more than half an inch in length, and curved. Craigmiller Castle, Edinburgh, August 1849.

Elymus giganteus, Spur, three-fourths of an inch in length, thick and full formed: section not so dark as in Rye. Golden Acre Nursery, Edinburgh, September 11th., 1851.

I am under the impression that besides seeing this disease in a specimen of *Phalaris arundinacea*, from Philadelphia, I have also seen it in a British specimen of this plant, as well as in several other grasses, as *Ammophila arenaria*, etc. Could some of your readers afford any information on this subject?

The following are all the variegated grasses I can at present call to mind:—

Phalaris arundinacea, (Common Gardener's Garter,) a border plant in every cottor's garden.

Dactylis glomerata, also pretty generally known in gardens.

Agrostis vulgaris, A Gardener's Garter in little, probably intended for some of the junior branches. Not so common as either of the preceding, and with them in Edinburgh Botanic Garden, Golden Acre Nursery, Edinburgh, etc., etc.

Other variations have been noticed in *Lolium perenne*, (Common Rye Grass.)—The spike for two-thirds of its length dividing into two, each forming a perfect spike. Linlithgow, July 1850; Sands of Barrie, Forfarshire, August 1850; near Kew, August 1851.

Lolium submuticum, presenting the same character. Golden Acre Nursery, Edinburgh, September 11th., 1851.

Bucetum loliaceum. The lower spikelet becoming pedicellate, and producing another spikelet from its axil. Duddingston Loch, Edinburgh, July 1851.

Dactylis glomerata, The outer glumes of the flowers varying from one-tenth to eight-tenths of an inch in length. Arthur's Seat, Edinburgh, August 30th., 1851.

October 1st., 1851.

A BOTANICAL RAMBLE.

BY MR. J. A. ROBINSON.

BOTANICAL Rambles are now almost as plentiful in print as the flowers which their various authors describe; but, generally speaking, they relate to some of the most favoured spots in our island, such as Devonshire and other parts of the south of England. If I may crave the space in your journal, I will attempt to give you a sketch of what may be picked up in a Botanical Ramble near this village, unknown probably to most of your readers. Southport is situated on the west coast of Lancashire, south of the mouth of the Ribble, and is exposed to the full force of the westerly winds; and the soil being for a considerable distance inland, almost entirely of a sandy character, it

might reasonably be supposed that the *flora* would be neither very plentiful nor varied; but it is not so; for, notwithstanding the exposed situation, winter is here almost unknown, save by name, and occasional gales of wind from the north and north-west, which set the sand in motion, and blow it far inland. These extensive sands tend to keep the atmosphere peculiarly dry, for the rain is rapidly absorbed, however great the quantity that may fall.

Near Southport is a rural place named, and very judiciously, Birkdale, and it is to this latter place we will take a stroll. We need not be long before we commence operations; for scarcely shall we leave the road and enter the fields which skirt it, before there are flowers in abundance. We will saunter along a bank, or "cop," as it is technically called here. Here is a brilliant patch of the *Erodium cicutarium*, (Hemlock Stork's-bill,) with its beautiful delicate pink flowers; then, almost side by side, and bearing a close resemblance, except in the leaves, is the *Geranium Robertianum*, (Herb Robert;) and the *Geranium molle*, (Dove's-foot Crane's-bill;) the long beak-like seed vessels of these plants present a most singular appearance, and they have not been inaptly named. We cannot, like the midland and southern counties, boast of the *Viola odorata*; but the eye will ever and anon rest on bunches of the *Viola canina* and *Viola tricolor*, contrasting delightfully with the brilliant scarlet flowers of the *Anagallis arvensis*; the yellow flowers of the *Galium verum*; the lilac of the *Cardamine pratensis*; the pink of *Ononis arvensis*; and the no less beautiful, though minute, *Polygala vulgaris*; all of which may be found, closely congregated, on almost any bank in this vicinity. The *Arundo arenaria*, so useful on sandy coasts, is just putting forth its head from the tender sheath surrounding it; and other grasses in abundance are quaking and bending to the summer breeze.

In the pools of water the *Hottonia palustris* and *Eriophorum vaginatum* are now plentiful; and certainly the former is deserving of a better locality than that where it seems indigenous. In the boggy districts the stems and leaves of the *Menyanthes trifoliata* are plentiful enough, although as yet there are no signs of its beautifully-fringed blossoms. The margins of the ditches, and the marshy ground generally, are covered with the flaunting yellow flowers of the *Iris pseudacorus* and *Caltha palustris*, intermixed with the less assuming hues of *Myosotis palustris*, *Ranunculus aquatilis*, and *Veronica anagallis* and *beccabunga*. Yet a few weeks and some of these will be succeeded by the beautiful purple flowers of the *Lythrum salicaria*, the leaves of which are now fast making their *debut* from their watery bed. We cannot, as may be easily imagined, boast of many of the Orchis tribe—only *Orchis morio* and *O. maculata* being at all plentiful. That beautiful flower the *Parnassia palustris* will shortly be seen in thousands on the low marshy grounds near the shore; and at the present time portions of the shore itself are carpeted with the *Statice armeria* and *Glaux maritima*. In some of the meadows *Botrychium lunaria* and *Ophiglossum vulgatum* are plentiful; as also that little gem *Euphrasia officinalis*.

But I must cut my list short, for even now I am fearful lest I should have given you too lengthy an article; but should you deem it worthy of insertion, I may probably renew the subject at a future time; and trusting that if any of your readers have supposed this an unfavourable locality for their summer rambles, they may be disabused of the notion.

Wycollar Cottage, Southport, Lancashire, June 9th., 1851.

THE SWEET, OR SPANISH CHESTNUT. (*CASTANEA VULGARIS*.)

BY J. MC'INTOSH, ESQ.

THE Chestnut has frequently been alluded to by our old English poets, so that we shall preface what we have to say on this tree with one or two quotations. First then, Herrick says—

“Remember us in cups full crown'd,
And let our city health go round;
Quite through the young maids and the men,
To the ninth number, if not ten;
Until the fried chestnut leap
For joy to see the fruits ye reap
From the plump chalice, and the cup
That tempts till it be tossed up.”

And the good old poet Milton, says—

“While hisses on my hearth the pulpy pear,
And black'ning chestnuts start and crackle there.”

Fear not my readers, I am neither going to write the history, or treat upon the good and bad qualities of this old inhabitant of our sea-girt Isle; but merely to record two curious old trees of this species of *Castanea*, which are now in existence, and likely to be so for many a long year to come, at Great Canford, in the county of Dorset. The late indefatigable J. C. Loudon, in his master-piece—“*The Arboretum Britannicum*,”—merely alludes to the existence of these trees in the time of ‘Grose.’ We have frequently paid a visit to these venerable trees, and shall thus briefly describe them. There appear originally to have been five, known and handed down to the present time as John o’ Gaunt’s Chestnuts. Now, John of Gaunt was the fourth son of King Edward the Fourth, and Duke of Lancaster. Whether these trees were planted before his time, or by His Grace’s direction, we have no account, nor shall we offer an opinion; suffice it to say, that of these five trees only two remain in life. The first and finest is in front of Canford House, and measures at the ground thirty-three feet; at six feet high, twenty-seven feet; at or about the height of six feet there are about twenty large branches, springing out in an upright direction, and assuming the character of young trees. The main trunk is somewhere about seventy feet high, full of holes, and almost hollow; the bole, near the ground, when we last saw it, was

the habitation of a colony of young Rabbits, (*Lepus cuniculus*;) and about twenty feet high in the bole or trunk, was a litter of Kittens, (*Felis*.....? *var domestica*;) six in number, and dead, the mother having no doubt been killed by the keepers as a poacher. A little higher up, the trunk was swarming with nests, containing eggs and young of the Common Starling, (*Sturnus vulgaris*;) and what is most singular, there was a nest with young Starlings immediately above the hole occupied by the young Cats.

At a little distance from this tree is another, quite prostrate, having laid in this position, bleached by the rains and dews from heaven, for many a long day, and likely so to remain. At about five feet from the butt end, it girthed sixteen feet, and at ten feet, eighteen feet five inches; here it branches off into three large branches, the stumps of which now only remain; the middle branch measured eight feet, the right hand one ten feet, and the left six feet nine inches. Still further on, we came to what was originally the largest, but which is now a mere shell, with about eleven young trees springing out from its base. At the ground this stump measured forty-six feet, and must have been, when in its beauty, a magnificent tree. We shall now only add that Canford belongs to Sir J. J. Guest, Bart., who, with his amiable Lady, will no doubt afford these venerable relics of days of yore that protection which their decrepit old age requires.

Charminster, Dorset, August 11th., 1851.

NOTES ON THE APPEARANCE AND CAPTURE OF LEPIDOPTERA IN THE LAKE DISTRICT, IN 1851.

BY MR. W. GREENIP.

Anisopteryx æscularia and *Hybernia leucophearia*, beat from young oaks, March 14th.

Biston prodromarius, taken from the bole of the oak, from March 16th. to April 8th.

Lobophora polycommata. I took good specimens of this rare moth, daily, from the trunks of young oaks and ash, from April 7th. to May 2nd.

Lobophora lobulata, from the ash, during the month of April.

Lobophora sexalisata, found on the trunks of the beech, between June 4th. and 17th.

Zerene albicillata, sitting on the oak during the days, and flying amongst the hazels during the nights of June.

Demas coryli, taken from the buds of the beech, June 15th.

Coremia propugnaria, about the end of June.

Crambus radiellus. This insect is found on our highest mountains, and is generally taken on the wing, among the *bent*. I took five specimens on Skiddaw, June 29th.: on the 4th. of July I captured ten more on Helvellyn.

Erebia Cassiope. On July 17th. I took this insect on Scawfell, at an elevation of more than two thousand feet.

Satyrus Davus, found among the *bent*, on the mountain side, July 24th.

Plusia bractea, honeysuckle, August 1st.

Hydrocampa nymphaea, together with *Hyphenodes humidalis* and *Crambus margaritellus*, all on the wing, on a peat moss, at the foot of Derwent Lake, August 4th.

Emmelesia teniata, beat from the hazel, four specimens on August 10th., three on the 12th.

Half-a-mile higher up the mountain side, amongst a broken line of crags, I was fortunate enough to fall in with *Stilbia anomalata*, together with *Plusia interrogationis*.

Also taken from the crags, the following:—*Anaitis plagiata*, *Coremia olivaria*, *Coremia salicaria*, *Coremia didymaria*, *Hemithea cythisaria*, *Harpalyce ocellata*, *Aplocera cæsiata*, *Emmelesia ericetaria*.

On August 28th, I took from the rocks *Cnephasia bellana*.

Keswick, September, 1851.

THE COALFISH, (*MERLANGUS CARBONARIUS*)

BY ROBERT GRAY, ESQ.

ALMOST every one who is interested in the study of fishes, and who has opportunities for taking notes, must look forward with some eagerness to particular seasons when subjects are in most abundance. Not the least attractive of these is the time of the Herring fishery, or *drave* as it is called in the east of Scotland; for not only does the ichthyologist, if he be a man of business, participate in the general stir which it occasions, but he has many chances of enriching his collection, and of adding to his stores of knowledge. The nets of the fishermen, besides yielding marketable produce, often bring to light important facts; and perhaps the most remarkable example that has occurred for some time within our observation, is one regarding the species which heads this notice. It is almost too generally known to require repetition here, that the vast shoals of Herrings which appear on our coasts in summer, afford a rich supply of food to many Sharks, and other fishes with a voracious appetite. Of these may be particularized the Dogfish, (*Spinax acanthias*,) the Porbeagle, (*Lamna Cornubica*,) which in some seasons we have seen hunting in troops numbering a score, and the Hake, (*Merluccius vulgaris*,) The last-named, though one of the Gadidæ, or the family of Codfish, will equal in voracity any small Shark; and to the Coalfish, the subject of our remarks, we apply the same observation without limits.

About six weeks ago, this fish appeared in Dunbar Bay in considerable numbers, and under very peculiar circumstances; and a more destructive

enemy to the fishermen has not been seen for many years. It would seem, in fact, during the present drave at Dunbar, to have taken the place of the Dogfish, one of the worst annoyances to fishermen, when pursuing their calling, at this season; nor does it appear, by the change, to have in the least degree mitigated the evil. One morning when we visited the shore, we were particularly surprised at the numbers which had been caught on the previous night. Almost every boat, and there could not be fewer than two hundred, had landed a number; and a considerable part of the quay and adjoining beach was occupied by the various crews employed in cleaning them. They were prepared in the same way as Cod and Ling, by being split up, salted, and dried; but, though in tolerable demand amongst curers, the food is generally esteemed coarse, being chiefly made use of by the poorer classes. The specimens measured from two to three feet in length; but notwithstanding their bulk, they must have been a poor recompense to their industrious captors. What had become of their usual enemy the Dogfish? It had disappeared altogether, though in former years it had regularly appeared in shoals at the commencement of the fishing—a well-known nuisance, pursuing and devouring the Herrings with uncommon rapacity; besides committing serious damage on the nets. But its substitute was not a whit better liked, and with good reason; their property being destroyed, and the Herrings devoured just as before. The stomachs of most of them contained recently swallowed Herrings; some of them so many as five or six large ones. We were somewhat amused to see a number of little ragged urchins picking up these and carefully washing them in the sea, with a view to find them a market. They were afterwards, we discovered, vended in the streets at a penny a dozen; and in spite of their late burial and restoration, they appeared to meet with a ready sale.

All the Coalfishes we saw were not captured alike: they were caught in two ways—entangled in the nets, and by baited fishing-lines put out by the fishermen as an amusement in the interval between setting and drawing their nets. Before being lifted into the boat they were knocked on the head with a handspike; and those which had seized the bait, had made so eager a bite that their bodies were mutilated ere the hook could be recovered.

Rapacity, such as we have spoken of, on the part of the Coalfish, is more like the habit of a true *Merlucius*, or Hake, which is very destructive to small fishes. The one is easily distinguished from the other by the position and number of the dorsal fins; and by other characteristics which may be learned on consulting any work on Ichthyology. Coalfishes, when young especially, vary considerably in colour—from a light grey to a deep green, which in adult specimens is sometimes retained, but more frequently changed to a deep black. When about a foot in length, they afford good diversion to the angler by freely taking a baited hook, or springing at an artificial fly however rudely formed. We have caught scores of them in an evening by using a small goose feather fastened to a hook without any care, and trolling with it from the stern of a boat in motion. From piers and jutting rocks, numbers

of youthful anglers may be seen in a summer evening, using their simple but effective tackle, which is sometimes nothing more than a slender wand, a bit of twine, and a bent pin. The young Coalfishes, when nearing the shore with the tide, swallow greedily any bait which is thrown in their way, and thus they are taken in great numbers; but when the water is receding, they become shy and will sniff saucily at the bait, wag their tails, and pass on. On the east of Scotland, young individuals are known as *podleys*, and adults as *sethes*. Frequently in the winter season when the fishermen, in catching haddocks, shoot their lines over rocky ground, large numbers are captured of the maximum size, but they are grudgingly brought to shore as intruders on more profitable fishing.

In speaking of the Hake, (*Merluccius vulgaris*), we may observe that although it is said to be very rare in Scotland, we give credit to some non-scientific authorities who state the reverse: we mean the fishermen. In a recent communication from our friend, Mr. John Jaffray, residing in Dunbar, he states that he had made particular inquiries among the most intelligent of the fraternity, and was pleased to obtain very satisfactory information from one of them regarding the fish. This individual whom he interrogated, knew very well the differences between it and the Coalfish, and gave them in precise detail, shewing he did not speak at random; affirming at the same time that when following his vocation on the coast of Caithness, he had seen Hakes in great abundance caught in the Herring nets, to which, as well as to the Herrings themselves, they were very destructive. We mention this fact in the hope that if "The Naturalist" has travelled so far north as the county we have named, some of its readers there will be induced to make observations confirmatory of what we now record.

Southcroft Govan, Glasgow, September 8th., 1851.

Miscellaneous Notices.

Anecdote of a Dog.—A gentleman of my acquaintance—Mr. H....., of Axminster, in Devonshire, was, a few years since, the owner of a very intelligent and sagacious dog. It was a white Bull-terrier of the largest size; by no means remarkable for its beauty, but singularly docile, and strongly attached to its master; of whom it was the constant companion in the extensive journeys, which, as a commercial traveller, he was in the habit of taking. One day, Mr. H. had occasion to call at a house at the entrance to Lyne Regis, and accordingly alighted from his gig for that purpose, leaving his dog on the driving box. The horse, from some cause took fright, and started at a tremendous pace towards the town, with the reins trailing on the ground in dangerous proximity to its feet. In a few seconds, after apparently deliberating how to act, the dog leaped from the gig and seized the

reins in its mouth, pulling them with all its strength, and allowed itself to be dragged for a considerable distance, till he actually succeeded in stopping the horse by pulling it round into a gateway: he retained a tight hold of the reins, only relinquishing them when some persons seized the horse's head. This extraordinary effort of what it would be difficult to designate as less than reason, was witnessed by several persons besides the owner of the dog; who, as may be imagined, was both surprised and delighted at an achievement which, besides its singularity, was in all probability the means of preventing a serious accident.—*G. P. R. Pulman.*

Young Hares, (Lepus timidus,) nursed by a Cat.—The following very remarkable circumstance has just come to my knowledge, as having occurred at Acomb, near this city. Many instances have no doubt occurred in which young Hares have been brought up by the Domestic Cat; but I never before heard of this being done after the Cæsarean operation had been performed on their mother. The fact is this:—On Wednesday morning, the 10th. of September, Mr. J. Jolly, of Acomb Grange, shot a Hare, which proved to be with young; he immediately opened the animal, and took from her three young ones, which he carried in his pocket to his house—the distance of a mile, and placed them in the care of a Cat which had recently kittened. The Cat took to them without any difficulty, and they are now alive and thriving well.—*B. R. M., York, Oct. 3rd., 1851.*

The Iceland Falcon, (Falco Islandicus.)—A very rare bird of the falcon tribe was shot lately at Inverbroom, in Rossshire, by Mr. Grant, gamekeeper to A. K. George, Esq. When first noticed, the hawk was hunting on a hill top, and when shot he had blood on his feet and legs, as if he had just then killed some bird. Seeing him take notice of a terrier dog he had with him, Mr. Grant took advantage of the shade of a rock until the hawk came round it, seemingly threatening the terrier and driving him onwards, circling in the air and uttering a wild and peculiar cackling noise. When in front of the rock a shot ended his hunting career. The keeper seeing that he was a *rara avis*, sent him off to our friend, Mr. Snowie, Inverness, to be stuffed; but as no specimen of this stranger bird had been seen in that locality, the *savans* were at a loss to give the bird a name or local habitation. Two or three feathers were forthwith dispatched to Charles St. John, Esq., the eminent naturalist, who pronounced the bird to be the Iceland Falcon, and who had seen one a short time before near Elgin. He at once recognised the bird, though not more than two or three have been shot in Britain. The following description will enable ornithologists to understand the difference between the Iceland Falcon and those of this country:—Weight of the bird, three pounds fifteen ounces; length, twenty-one inches; extent of wings, three feet nine inches; beak, blue; tip, black, strong; and deeply-notched; head, ash-colour and white, beautifully blended and mixed; all the back feathers and part of the wings, pale ash, with dull white edges, and several white spots on each feather; tail,

barred with dusky white; throat, belly, and legs, white, curiously marked with bars of brown, pear, oval, and heart-shaped. The entire plumage is a rare instance of nature's harmonious colouring, and the hues are like the moss and snow-tinted hills of the Falcon's native clime.—*Inverness Courier*.

Occurrence of Hen Harrier, (*Circus cyaneus*).—A very fine specimen of this bird was obtained near Ashburton, June 12th., 1851, and is now in the collection of the Rev. C. Bulteel, Holbeton Vicarage.—*R. A. Julian, Jun., Laira House, Plymouth, June 23rd., 1851.*

Occurrence of Fork-tailed Kite, (*Milvus vulgaris*).—I saw a beautiful bird of this species at Trowlsworthy Rabbit-warren, Shaugh Moor, June 17th., 1851. The Rev. C. Bulteel informs me he saw a pair there on June 18th.; and the warrener told me he had seen a single one there almost every morning for the last two months.—*Idem*.

Rare Captures. Woodcocks.—As Matthews, gamekeeper to the Rev. J. Holmes, of Brooke Hall, Norfolk, was going his usual rounds on Monday, May 5th., 1851, he met with the rare incident of springing an old Woodcock, with four young ones, in Brooke wood; two of the latter he succeeded in taking, but having neither dog nor gun, the old bird, with the remainder of her young, escaped his activity. A similar capture was made in the same wood some fourteen or fifteen years since, when an old bird, with three of her young, was taken. Another pair of young Woodcocks were also captured early this month, in the Preserves, at Holkham, Norfolk, which appeared, by their plumage, to be about three weeks old. The appearance of a few of these birds remaining to breed with us has become rather more common of late years, though still classing amongst the rare occurrences.—*Ipswich Express, May 21st., 1851.*

Note on the Cuckoo.—September 5th. A young Cuckoo was shot to day near Liskeard, and sent to me for preservation. On dissection it proved to be a male bird, and very fat: the gizzard lined with hair, and containing the remains of caterpillars. A few of the scapulars and upper tail coverts on the left side, with the first, second, fifth, sixth, and seventh tail feathers, were of the adult plumage and perfectly developed; but on close inspection, I could not find any other trace of moulting. *Quære?* Would this arise from natural moult, or were the original feathers destroyed by accident, and replaced by those of the adult colour?—*Clement Jackson, East Looe, September 10th., 1851.*

Note on a Kingfisher's Nest.—On Saturday, June 14th., 1851, I found a Kingfisher's nest in the Crag Pit; it contained two eggs; the nest, if it can be called one, lay some little way back in the bank, and on a slight depression of the soil lay the two milk-white eggs, immediately under which were a number of very minute fish bones, mixed up with the Crag. A most unpleasant smell arose from some black matter, which we found nearly at the mouth of the hole, while digging into the nest. This Crag Pit, which is in a garden,

is at least a hundred yards from the nearest stream, and men and boys are often working close to it.—*R. P. C, Ipswich.*

A White House Sparrow.—In July last, a Sparrow of a dirty white colour below and a light cream above, was shot here; it was a hen bird, and had at the time, I am told, either eggs or young ones, but of this I cannot be sure, as I did not see the nest myself; the bird was, however, very bare underneath, as if she was sitting.—*Idem.*

I bought a cream-coloured variety of the Common Brown Linnet, (*Fringilla linota*), and a white and brown bird of the same sort from a keeper in the neighbourhood of Basingstoke, when in Hampshire, in August last.—*Idem.*

ADDITIONAL HERONRIES.

As one of your correspondents wished information respecting any additional Heronries, the following may be inserted:—About twenty years ago, there was a Heronry of long standing at Monkcastle House, in the parish of Kilwinning, Ayrshire. The Herons built their nests on the trees that encompassed the house: a new house, however, being built on an eminence at some distance from the old one, when the family removed to this new residence, the Herons were left unprotected; so that, after experiencing much annoyance, they forsook Monkcastle, and chose to fix their abode some miles distant, near Eglinton Castle, where the Lugden falls into the River Irvine. This continued for some years to be their breeding-place; but, unfortunately, the Eglinton Iron works were established close to the Heronry, and the persecuted birds being constrained to look out for some quieter habitation, have gone we know not whither.—*D. Landsborough, Saltcoats.*

Your correspondent, at page 60 of "The Naturalist," has omitted in his list of Lincolnshire Heronries, to mention one which is situated at Manby, near Brigg, on the estate of the Earl of Yarborough. I believe it is much on the decline.—*R. P. Alington, Swinhope Rectory.*

There is rather a large one at "The Moor," the seat of Mrs. Penoyre, in Herefordshire, near the town of Hay, which is in Brecon: it has been there from time immemorial. It is situated in a wood of large oaks, some of which being once felled, but not grubbed up, the Herons deserted it for a time, but have since returned. In the middle of August, 1849, a Heron was shot near a large reservoir, belonging to the new river company, at Stoke Newington, near Highbury, Middlesex. Another was also twice seen at the commencement of last month, in a field at Highbury, and only half-a-mile from a populous district.—*E. E. Stride, Highbury Park, Islington, near London, August 16th., 1851.*

There is one now in existence at Denny Lodge, New Forest, Hants.—*F. Hyde D'Arcy, Lymington, Hants., September 20th., 1851.*

A few pairs of Herons have, during the past two summers, bred in Trenant

Wood, the seat of W. Peel, Esq.—*Clement Jackson, East Looe, September 10th., 1851.*

There is a Heronry at Carton, Maynooth, the seat of Ireland's only Duke.—*G. B. Clarke, Woburn, Beds., September 20th., 1851.*

In addition to the Heronries mentioned in "The Naturalist," by J. Mc'Intosh, Esq., I may notice two in this locality:—One in a wood belonging to Lady Vane, on the margin of Bassenthwaite Lake, seven miles from Keswick, Cumberland; the other on a small island in Rydal Lake, the property of Lady le Fleming, Rydal Hall, Westmoreland.—*William Greenip.*

Pied Blackbird, (*Merula vulgaris*).—I have now before me a preserved specimen of the common Blackbird, shot by the gamekeeper of Thomas Montgomery, Esq., of Garboldisham, in the winter of about 1838. The neck and head are partially covered with white feathers. I should think from the appearance of the plumage that he was a young bird. The gamekeeper told me he was very shy and nimble, and gave him much trouble to shoot.—*E. C. Nunn, Diss, Norfolk, August 4th., 1851.*

Partridges.—We are informed, says a correspondent in the "Norfolk News," by a gentleman who has a personal knowledge of the fact, that a nest of Partridges was hatched at Ditchingham, near Bungay, between the 13th. and 18th. of April. We believe this to be one of the earliest dates on which such an event has taken place.—*Idem.*

The Hawfinch, (*Coccothraustes vulgaris*), *breeding in Bedfordshire*.—The second week in July of this year, four full-grown young Hawfinches were shot at Woburn, Beds., which I have no doubt were bred in some of the woods or plantations surrounding us; and an old female bird was shot about two miles from here in the same week. I believe they breed regularly in the woods and plantations about here, as there is not a summer passes over without some of them being shot; and in the winter there are plenty of them both here and in the surrounding neighbourhood.—*George B. Clarke, Woburn, Beds., August 8th., 1851.*

Capture of the Rose-coloured Pastor, (*Pastor roseus*).—This remarkably rare bird was recently shot at Coatham, near Redcar, and is now in the possession of C. C. Oxley, Esq. of the latter place.—*D. Ferguson, Redcar, October 8th., 1851.*

Occurrence of the Rose-coloured Pastor, (*Pastor roseus*).—A fine adult female bird of this rare species was shot about the middle of last June, at Tamerton, a village five miles distant from Plymouth. The only information I could obtain as to its habits was that it much frequented a ploughed field.—*R. A. Julian, Jun., Laira House, Plymouth, August 25th., 1851.*

Occurrence of the Green Sandpiper, (*Totanus ochropus*).—I shot a young bird of this species, July 31st., near Crabtree, at the mouth of the River Plym.

The Rev. C. Bulteel informs me he has frequently seen one at the mouth of the River Erme during the last fortnight. A great distinguishing mark between young and old birds of this species, (and also of the Greenshank, Redshank, and Curlew Sandpiper,) is, that the rump feathers of the young are slightly barred at their tips, those of adult birds being pure white.—*Idem*.

Note on Green Sandpiper.—August 14th. A pair of *Totanus Ochropus*, male and female, were shot together at a small pond near St. Keyne; they were in moult, but in good plumage, and very fat. The gizzards contained a few aquatic larvæ, and their contents diffused in water, appeared like a quantity of small black hairs; which under the microscope, were apparently a vegetable substance in a state of decomposition.—*Clement Jackson, East Looe, September 10th., 1851.*

Singular situations for the nests of the Blue Tit, (P. ceruleus,) and Common Moorhen, (G. chloropus).—The Rev. Edmund Smyth, of Elkington, Lincolnshire, showed me, this spring, a nest of the Blue Tit placed inside a wooden pump. The parent birds entered through the orifice made for the handle, and the nest was placed about a foot below it, and was built all round the piston rod of the pump, filling up the whole space inside; but the frequent working of the piston rod produced a large hole through the centre of the nest. The young were nestled up in one corner, but so near was the piston rod that it must have grazed the old bird, when in use; notwithstanding this constant disturbance she reared her young: one alone falling a victim, being crushed between the piston rod and the nest. I believe she occupied the same situation last year. There is a nest of the Common Moorhen at Croxby Lake, placed in a thorn-bush at least three feet above the water. It is placed upon a broad branch, and built, as usual, of rushes, etc. It had eggs when first found, and hangs slightly over the water.—*R. P. Alington, Swinhope Rectory, Lincolnshire, August, 1851.*

A White House Martin, (Hirundo urbica).—For the last two or three days I have seen, sporting about with its companions, a pure white variety of the *House Martin*. I have seen and frequently heard of a *White Swallow*, but never before of a '*White House Martin*'—(perhaps some of your readers may.) I am quite satisfied in my own mind that it is a '*House Martin*,' from frequently seeing it go out and into its nest, which is under the eaves of my neighbour's dwelling, where there are four nests of this species. Mr. Hewitson, in his valuable work on "*The Eggs of British Birds*," says, "*The Martins are, I fear, and I grieve to think it, yearly becoming less numerous in this country.*" This fear I hope is groundless, for in the numerous villages with which I am acquainted in this county, and other portions of England, Scotland, and Ireland, I have always found more or less of these delightful and interesting birds. Perhaps some correspondent may say, you ought to have shot this bird: but I say no! And only hope that it may be spared to visit us again next spring.—*J. Mc'Intosh, Charminster, Dorset, August 9th., 1851.*

A White Swallow.—On Monday, July 29th., 1851, Mr. Thomas Burrows, Bird Preserver, of this town, shot on the Heyword, a hamlet of Diss, a Chimney Swallow having all its plumage quite white—even the long feathers of the tail and wings were the same colour. It is considered a fine specimen.—*E. C. Nunn, Diss, Norfolk, August 4th., 1851.*

During the winter Mr. Burrows shot that rare bird, the Ring Ousel, (*Turdus merula*), at Palgrave; a pair of Black Tern, (*Sterna fassiper*), on Dickleburgh Moor; and a Bohemian Chatterer, (*Bombicilla garrula*), at Sturston; all these places are adjoining Diss.—*Idem.*

The Jackdaw.—I think your correspondent who states that he never saw these birds build but in churches, must have had few opportunities of observing the habits of the Jackdaw, other than those afforded him in his native town of Totnes; for it is a notorious fact that there is scarcely a ruin of any magnitude which is not tenanted by them, as for example Rochester Castle, Netley Abbey, Chepstow Castle, and numerous others throughout the United Kingdom, which I could name were it necessary: but I believe bold cliffs and wild mountainous districts to be the natural breeding places of these birds; and in such situations they will almost invariably be found. Jackdaws abound in England, Scotland, Ireland, and Wales; and wherever in either of these countries, the cliffs, marine or inland, are adapted for that purpose, they may be seen, in the commencement of the breeding season, busily engaged preparing for incubation. It would be taking up too much of your space to quote any authors in support of this, I will therefore merely mention, for the benefit of such of your readers as have not the opportunity of observing for themselves, that if they will refer to either "Yarrell's British Birds," "Thompson's Birds of Ireland," "Mudie's British Birds," or "Jardine's Naturalist's Library," they will, I think, be convinced that, although the Jackdaw resorts to Mother Church, and secure in her precincts hath there, like the Sparrow, found her a house, and, like the Swallow, a nest where she may lay her young; yet it does not always nestle there, but still retains its ancient and natural haunts, where, for centuries before Christianity reached these islands, and ere there was a church tower to afford it an asylum, it reared its callow brood.—*E. K. Bridger, May 20th., 1851.*

Jackdaw.—Page 67, "The Naturalist." The Jackdaw constantly builds in this neighbourhood in hollow trees; and still more frequently in the chimneys of houses, to the great annoyance of the inhabitants; quickly filling them up to the top with sticks, in spite of smoke and fire.—*R. P. Alington, Swinhope Rectory, Lincolnshire.*

Jackdaw.—Churches are not the only places in which Jackdaws build. The present year I knew of one that built in a chimney. I have frequently found nests in the holes of trees, and likewise in the banks of gravel pits, formerly rabbit-holes.—*H. J. C.*

Nesting of the Starling.—The Starling, (*Sturnus vulgaris*), has the last two

or three years built platform nests, composed of twigs and bents, similar to a Wood Pigeon's nest, in the branches of the Scotch fir, in the evergreens, Woburn Park.—*G. B. Clarke, Woburn, Beds., September 20th., 1851.*

ARRIVALS OF SUMMER BIRDS OF PASSAGE,
AT PLYMOUTH, THIS YEAR, (1851,) UP TO THE END OF APRIL.
BY R. A. JULIAN, ESQ., JUN.

Chiff Chaff and *Wheatear*. March 21st. At Laira.

Blackcap. April 1st. In a garden at Yealmpton.

Sand Martin. April 7th. A pair were seen by my brother, flying over a pond at Crabtree for many hours.

Swallow. April 13th. Saw a single bird in Plymouth.

Common Sandpiper and *Yellow Wagtail*. April 14th. Sandpiper shot at Laira, by Mr. Bolitho, Plymouth. Wagtail seen near Devonport.

Willow Wren and *Whitethroat*. Saw several at Laira, April 15th.

Redstart. April 16th. My brother saw one at Leigham.

Sedge Warbler. April 17th. Duck-Hunting-Pool, Laira.

Whinchat. April 17th. Shot at Laira.

Tree Lark and *Wood Wren*. April 19th. Saw one of the former, and shot two of the latter, in Bickleigh Vale.

Grasshopper Warbler. April 20th. Saw one, and also heard it, as I was going to Yealmpton church.

House Martin and *Passerine*, or *Garden Warbler*. April 21st. Near the Erme River.

Cuckoo. April 24th. Saw a male bird at Compton.

Laira House, Plymouth, June 23rd., 1851.

Nesting of the Domestic Pigeon and Jackdaw.—I should not have troubled you with this communication, but that your correspondent, Mr. J. Mc'Intosh, appears to invite a confirmation of the fact that the House Pigeon prefers forming its nest of twigs to straws, as noticed in his remarks on the nest of the House Pigeon in a late number of "The Naturalist." I have for many years kept a collection of superior bred fancy Pigeons, such as Carriers, Jacobins, Turbits, and other leading varieties, which are confined in a large wired aviary, affording them ample space, and where they breed freely. Now all these exhibit a great partiality for twigs to form their nests, in preference to straw; and to indulge their wishes as far as practicable, I procure from my friends all the worn down birch broom heads that I can obtain; and after releasing the twigs that are fastened to the handle, throw them to the birds for their domestic purposes, and to which they are immediately applied. I approve of their choice very highly, as the twigs form a most secure and comfortable nest; the drainage assists in keeping it clean, and the sitting birds look more interesting when surrounded by the birch; in fact I have adopted the plan with my Pigeons that is in vogue with Her Majesty's Poultry nests at Windsor, where they are formed of heath. I may add that as I keep

Cochin China Chickens and Sebright-laced feathered Bantams within the same aviary, to preserve them from the cats, with which I am surrounded, I am necessarily obliged always to keep a quantity of straw within the aviary for their use, which is within reach of the Pigeons, and of which they avail themselves when not sufficiently supplied with birch broom heads, but never otherwise. I have only one complaint to make on the subject of the twigs, and that is, the Pigeons never appear to consider their nest completed while one stick remains in view, and there is a possibility of dragging it in.

In reference to the nesting of the Jackdaw, I may observe that they not only breed in churches, towers, castles, and hollow trees, but I have often known them build their nests in the crevices of stone quarries in the vicinity of Bath. When a boy I often assisted others in taking nests from such a situation; and well remember on one occasion raking out one from an interstice in the quarry by the assistance of a long blackberry thorn, which I twisted into the nest, and in time withdrew altogether; it consisted of pieces of flannel, rags, and cloth, and an old black kid glove, an old pen, and a quantity of sticks, wool, etc., but, much to my disappointment, no egg. The Jackdaws sat on the top of the quarry watching my proceedings with great interest during the process of ejection, and I dare say thought it a most illegal step.—*C. H. Brown, No. 5, Bears Place, New North Road, London, September 9th., 1851.*

Remarkable appearance of Oak trees, at Woburn, Beds.—A great number of the Oak trees in this district are so completely covered with Oak-apple galls, produced by the puncture of the *Cynips quercus*, as to have more the appearance of Apple trees loaded with ripe fruit, (only rather small ones,) than Oak trees, there being such immense quantities of them. They have a very pretty effect at this time of the year, and where other trees grow beside them in full leaf, produce a very pleasing contrast.—*G. B. Clarke, Woburn, Beds., June 7th., 1851.*

Proceedings of Societies.

Yorkshire Naturalists' Club, Monthly Meeting, Wednesday, October 1st., 1851.—The club met as usual, at Mr. Graham's, in Jubbergate, when E. CHARLESWORTH, Esq. occupied the chair, in the absence of the president, Professor Phillips; there was a full attendance of members.

MR. W. THOMPSON exhibited a fine specimen of the Ring Ouzel, (*Turdus torquatus*,) which he had shot on the 19th. of September last, in the Residence Gardens, close to York Minster. This is a most unusual locality for this bird; which, however is not very uncommon in some parts of the West Riding of Yorkshire.

MR. GRAHAM exhibited an old female Partridge, (*Perdix cinerea*,) which was shot by W. Garwood, Esq., near York, about the middle of last month. It was remarkable in having the upper mandible very much elongated, and curved upwards and backwards, almost like the bill of the Avocet. This curious malformation must have rendered feeding somewhat difficult, yet the bird was in good condition.

MR. GRAHAM also shewed an extremely large male specimen of the Red Grouse, (*Lagopus Britannicus*,) which was lately shot in Yorkshire, by Mr. Wilkinson, of Myton. This remarkable bird weighed full twenty-nine ounces—the usual weight in Scotland is about twenty-five

ounces. Yarrell has recorded one shot in Yorkshire, which weighed twenty-five ounces—the Yorkshire birds usually are smaller than the Scotch. Pennant also mentions having heard of one shot in Yorkshire, which weighed twenty-nine ounces.

MR. FERGUSON, of Redear, exhibited a specimen of the old English Black Rat, (*Mus rattus*,) which he had captured lately at Stockton-on-Tees, where it appears this species still exists in some numbers.

MR. R. COOK, of Peel-Street, exhibited a curious leaf of the Common Spear-mint, (*Mentha viridis*,) in which, instead of being a single ordinary leaf, it was as though three leaves had grown together. It was gathered in his garden in August last.

Shortly after nine o'clock the members separated.

Entomological Society, Monthly Meeting, September 1st., 1851.—J. O. WESTWOOD, Esq., President, in the chair.

ALFRED BEAUMONT, Esq., of Huddersfield, was elected a member of this society.

MR. ADAM WHITE exhibited a crustacean, the *Nymphon giganteum* of Goodsir, taken at the depth of twenty fathoms off the Shetland coast.

The President exhibited a moth reared from eggs, received from Mr. Parker, apparently distinct from the true silk-worm moth; but of which the larva spun a fine kind of silk, known in the north of China by the name of Tsatlee.

The President exhibited bred specimens of *Nepticula centifoliella*, the larva of which mine the leaves of the rose, and previous to their transformation quit the leaves, and form remarkably minute brown cocoons in the bracts of the leaves.

MR. GRANT exhibited *Peronea permutana*, *Agrotis valligera*, and *Gelechia*, all from Barnes-common, being a new locality inland for species hitherto only taken on the coast.

MR. SMITH exhibited a Bee new to Britain, the *Bombus arcticus* of Dahl, lately taken by Mr. White, at Lerwick.

The Querist.

Is it believed that Ichneumons pierce insects in the *pupa* state, and what proof have we that they do so?—G.

D. G. F.—Ether poured upon the head is a very effective mode of destroying the smaller insects without injury to their colours: I have even killed the large dragon-fly in this manner. Pounded laurel leaf in an air-tight box is another good method.—H. J. C., September 18th., 1851.

Moorhen.—In confirmation of the statement of J. C., in "The Naturalist" of September, page 164, on the hatching of the Moorhen, previous to the last week in May or the beginning of June, I had a young Moorhen offered me in Surrey, on the 23rd. of May last, that had been hatched at least a week.—Idem.

Will a spider ever rob the web of a neighbour? Will he use the neighbour's web as well as his own, if the neighbour himself have been destroyed or removed?—F. O. MORRIS, Nafferton Vicarage, Driffield, October 1st., 1851.

In reply to the Quære of W. F. in "The Naturalist" for October, I have to say that water is certainly not by any means necessary to the abode or the song of the Nightingale, for in Edlinton wood, near Doncaster, these birds abound, at least they did some years ago, though sadly thinned by bird-catchers; and that wood is on the top of a little hill, with no water whatever in or near it, unless it be some small pond for cattle. While speaking of the Nightingale, I have also to observe that I believe York has hitherto been the farthest northern limit assigned to it; but I plainly heard it, 'ni fallor,' about a mile south of Malton, namely seventeen miles north-east of York. It was about eight years ago, when I was walking home one moonlight night.—Idem.

Would Mr. Julian be so obliging as to record the date of his interesting visit to Wicken-fen, which in his account of in "The Naturalist" he has omitted to record?—Idem.

NOTES ON THE ENTOMOLOGICAL FAUNA OF PERTHSHIRE.

BY J. GRAY, ESQ.

"British Entomology, alone, to be well understood, is the study of a life." This is a remark of one of the first naturalists which this country has produced—a remark which cannot fail to be verified in the experience of those who have made it a matter of studious moment; however much it may be regarded in another light by others with whom possession is the greatest object of their desires; for it lies only with the entomologist to understand and value the true import—the great difference between studying to obtain, and obtaining in order to study.

It surely ought to afford a pleasing occupation for leisure hours, especially during those months when nature is, in a manner, sealed up, to examine her productions collected when a milder season of the year called them forth in all their joyous activity; and digest those materials so well calculated at once to exercise the reason and the judgment, and raise the mind in its aspirations after higher attainments; which, however abused, it is the province of Natural History in a peculiar manner to awaken.

The investigation of the natural productions of certain circumscribed districts tends very much towards the elucidation of peculiarities, often remarkable ones, in the distribution and local character of species; opening up at the same time a field of interesting inquiry, as to the changes which the march of civilization and agricultural improvement has produced. It is only in this light that collections of local fauna can be made subservient to the cause of science; for looking upon them in any other aspect the philosophic naturalist can only regard them as the most miserable attempts to restrict the interest in nature's works, within the narrow limits of individual partiality; and, if instead of looking upon them as what they really are—but a small link—a slight addition to the knowledge of her extensive operations, they are recorded, as too often is the case, as facts of exclusive moment; then indeed the attempt is made to retard the knowledge of nature as she is, and the solution of rules which a best are but partially understood, would seem but too truly to have become a subject of little consequence; a circumstance of no rare occurrence amongst British writers, and to which the majority of the entomologists of this country certainly form no exception.

The insect fauna of our native country Scotland, bears in many respects a striking resemblance to that of Norway and Sweden: this is the case particularly in the northern and western highlands, where many localities of the deepest interest to the naturalist, remain to the present day in much the same state as they have been for many centuries; thus affording a stronghold for species which otherwise might have been extirpated, or which at least, might only have remained to be recorded as straggling or uncertain natives of Britain. The following notes it is hoped may be thus useful in attempting to

elucidate the geographical range of such species; in any other respect the interest attached to them has already been anticipated by continental writers more than half a century ago—long before many of them had been known as natives of this country.

We have been led into these remarks by a somewhat interesting communication we had recently from our friend Dr. Nelson, of Lytham, who a short time ago instituted an investigation into the entomology of Perthshire. Prevented by his professional engagements from carrying it on in person, he employed a young lad for that purpose, and accordingly sent him to the vicinity of the Black Forest, near Rannoch, for several weeks during the months of June and July last. His more interesting captures may thus afford some idea of the insect productions of the north, as contrasted with those of continental and English localities; a subject which by the way we are glad to see is exciting an interest with some Scottish entomologists, who appear to be now impressed with some idea of the utility of making known the results of their investigations; and while we feel much pleasure in having it in our power in some small degree to aid them, we must still remind them that the chief benefit to be derived from such researches, lies altogether, as we have said, in the enlarged views of nature's works that they are calculated to produce—a subject of far higher moment, as shewing the operation of the laws of Him who upholdeth all things, and who doeth nothing in vain, of Him who

“Gives its lustre to an insect's wing,
And wheels his throne upon the rolling worlds.”

In *Coleoptera*, this district of Perthshire is peculiarly interesting as a Scottish locality. Without descending to a minute enumeration of those kinds which, though perhaps not very frequently met with, are yet generally distributed throughout the country, we will merely select such as from their local habits seem to us to be worthy of special notice. In the surrounding hilly districts, in common with many such like localities in Scotland, there occur various Alpine species, such as *Carabus glabratus* and *Cymindis basalis*; *Carabus nitens* and *arvensis* are also met with. It is, however, an investigation into the forest localities that possesses most attractions for the entomologist, and it is to the inhabitants of these haunts that we chiefly propose to direct our attention.

Asemum striatum is not unfrequently met with flying during the sunshine, and alighting on palings, cut timber; etc. This species, which appears to be almost exclusively northern in its range, occurs in many other Scottish localities, and is far from rare in the neighbourhood of Glasgow. It is seldom seen however much further south in this country; but in Sweden and the north of Europe generally, it is a well-known insect.

Saperda scalaris occurs in very sparing numbers in Perthshire. We are not aware of any other Scottish locality for this species, which in its general range is much more southern than the preceding.

Besides the two common species of *Rhagium*, namely *bifasciatum* and

Inquisitor, *R. Indagator* occurs not unfrequently in company with both. These three species are widely distributed throughout temperate Europe.

Lamia Textor: this truly interesting beetle forms a very conspicuous figure in the entomology of this district. In its habits it is very local, and far from common. Elsewhere in Scotland we are not aware of its occurrence; but it is far from rare in many parts of the continent.

Astynomus Atilis: this very conspicuous insect is another truly interesting species, and is perhaps the most conspicuous of our native *Cerambycidae*, from the extreme length of the antennæ of the male. In this district it is by no means scarce; and though we have known of its occurrence near Glasgow, and several other widely distant localities, it is evidently a rare insect in every other part of Britain. "*Habitat in truncis arborum Europæ.*"—Linn. We find on referring to Mouffet's "*Thesaurum Insectorum*," page 151, a very characteristic wood-cut of a male of this species, thus shewing it to have been a long known insect, and originally figured, upwards of two hundred years ago, in the first zoological work published in this country.

Pissodes Pini is not uncommon in many places, generally found resting on the newly-felled firs.

Trichius fasciatus is very abundant, flying in the sunshine over flowers: this lovely beetle is also very common in many parts of the continent. The markings on the elytra vary considerably according to locality; thus it is generally found that the black predominates on those from alpine districts, while others inhabiting a milder locality, have the yellow more conspicuous. In Perthshire both of these varieties occur in all intermediate stages; though dark specimens are much scarcer.

Cetonia aurata: this beautiful beetle is also abundant in this neighbourhood, but is of very local habits—flying over flowers in the hot sunshine. This is an interesting locality for this species, which, however common in some districts, appears to have been considered more southern in its distribution in this country.

Amongst the species of diurnal lepidoptera few can be mentioned as not of general distribution. *Hipparchia Blandina* occurs in this district pretty commonly; it appears to be by no means a scarce insect in Scotland generally, as it has been noticed as occurring in many distant localities.

Hipparchia Cassiope is the most interesting butterfly which we have to record as occurring in the hilly parts of Perthshire. It is strictly a mountain species, and occurs in very sparing numbers.

The beautiful Bee-clearwing, (*Sesia bombyliiformis*), is occasionally observed on the wing during the day, hovering over flowers in gardens, etc.

Orygia Coryli is not unfrequent; indeed in Scotland generally, it is a well-known and often an abundant insect.

Amongst the *Noctue* many interesting species frequent this district, sometimes in considerable plenty, which appear to occur but sparingly in any other part of Britain. Amongst these may be mentioned *Acronycta Euphorbiæ*, *Hadenæ*

adusta and *H. contigua*; *Luperina furva*, and *Stilbia anomalata* are also far from rare.

Hadena rectilinea is also not unfrequent, and *Plusia interrogationis* also occurs not uncommonly in this district on mountainous heath.

Polia tincta and *P. occulta*, though not abundant, are by no means rare, the latter of which occurs in many beautiful varieties.

Anarta melanopa and *A. cordigera* are two very interesting species, both occurring not unfrequently in this district; and confined, so far as we are aware of their distribution in this country, to this district in Perth. As they are evidently both alpine species we have no doubt of their occurrence elsewhere in the north of Scotland. We observe they are mentioned by Thunberg, in his original descriptions, as natives of Sweden.

Eupisteria fuliginaria, (Linn.) *E. carbonaria*, (Fabr.) is not at all uncommon: *E. quinquaria* is also frequently met with.

Psodos trepidaria—a pretty little insect—also appears in considerable numbers.

With the above species we now conclude our notes, in the hopes that they may not prove uninteresting either to the naturalist, or to his more humble ally, the collector; as shewing what is sure to be the result of diligent search and observation; but at the same time we cannot shut our eyes to the fact, and we feel that the author of the sentence with which we opened our remarks, did not overstep the bounds of truth when he said that "It is a misfortune resulting from the passion of collecting, that nearly all naturalists are more bent upon increasing the contents of their cabinets, than on studying the economy of those living objects which are perpetually crossing their path."

Glasgow, September, 1851.

LIST OF FERNS FOUND IN CONNAMARA.

BY HENRY SEEBOHM, ESQ.

THE district of Connemara, not inappropriately called the Irish Highlands, combining, as it does, such a variety of mountain, sea, lake, and island scenery, might readily be supposed to afford a rich harvest to the cryptogamic botanist; and this would undoubtedly be the case, were it not for the almost entire absence of wood. The Ferns here enumerated, with the exception of *Asplenium marinum*, *Ceterach officinarum*, *Polypodium phegopteris*, and *Pilularia globulifera*, were all gathered within a mile of the residence of James Ellis, at Letterfrack, which is beautifully situated near the foot of Bengooria, and commands a fine view of Ballinakill Bay. This list, made during a visit of only three weeks, will no doubt be found to be imperfect; but since the facilities for travelling have been of late so much increased, it is to be hoped that the Botany of so interesting a district will become better known.

Equisetum fluviatile abundant in several lakes.

E. sylvaticum sparingly on the banks of small streams.

E. Telmateia flourishes on the banks of several streams: some specimens measured upwards of three feet in height; and several of the branched fronds were surmounted by a catkin.

E. arvensis abounds wherever the land has been brought into cultivation.

Lomaria spicant is very common on the road-sides.

Pteris aquilina: common.

Polypodium vulgare occurs in considerable abundance.

P. phegopteris: this fern I only found in one locality. Two miles from the residence of J. Ellis, is a mountain which rises nearly two thousand feet above the level of the sea, and which I had been climbing with a companion, and an Irish labourer for a guide. We had just visited, with the help of ropes, an Eagle's nest, and were descending a somewhat steep and very rocky side of the mountain, when I found a few small plants of *P. phegopteris* in a wet chasm of the rocks.

Polystichum aculeatum and *P. angulare*: plants of well-marked character of both these species are not unfrequently met with.

Lastrea oreopteris occurs very sparingly on the banks of one or two small streams.

L. Filix-mas: abundant.

L. multiflora: common.

L. spinosa: frequent.

L. recurva: this species grows in considerable abundance among the loose rocks on the banks of a mountain stream, which flows from a lake behind Bengooria; and after passing through some high boggy ground, enters, by a series of beautiful cascades, into a rocky valley; sometimes flowing in a narrow channel between almost perpendicular rocks, which in several places widen, and form a sort of natural amphitheatre, at the bottom of which is a deep pool, generally abounding with trout. Most of the specimens were of a very marked character: the lower pair of pinnæ were largely developed, each leaflet, more especially in the barren fronds, being concave, and the whole frond very closely resembling in general habit that of *L. rigida*.

Athyrium filix-fœmina is one of the commonest Ferns.

Asplenium adiantum-nigrum occurs in considerable abundance, I believe invariably on limestone rocks.

A. marinum grows luxuriantly on High Island, about twelve miles from Letterfrack. This island is quite a small one, but is surpassed by few in the neighbourhood for the beauty of its cliffs, and for the miniature fiords which run into them, and into which the sea sometimes breaks with the most imposing grandeur. The island is not inhabited, but it is used as a Roman Catholic station; and the ruins of a church and two crosses carved in stone are to be found upon it. I found several plants of this fern, in which the fronds are very deeply serrated, some almost doubly pinnated.

A. ruta muraria I only found in one locality, on an isolated limestone

rock which protruded itself from among the surrounding mica slate.

A. trichomanes: it was very curious to observe in rambling over the mountains, that wherever the limestone strata appeared there were almost always plants of this fern growing in the crevices.

Scolopendrium vulgare is not unfrequent, but does not appear to attain any great size.

Ceterach officinarum is very abundant on the walls on the road-side between Oughterard and Galway.

Hymenophyllum tunbridgense: I had expected to find this beautiful little fern, and had searched most of the waterfalls for that purpose, but without success. One day I had been out with a small party Fox-shooting on one of the mountains, and we were overtaken in a heavy shower of rain. To prevent our guns from getting wet we crept into a hollow formed by the rocks, and we had not been there long before I found that the sides of the cave were covered with a profusion of *Hymenophyllum*, and I subsequently found it in great abundance in similar situations.

Osmunda regalis is one of the commonest ferns, and flourishes luxuriantly on the banks of the lakes and streams.

Botrychium lunaria grows on the lawn in front of J. Ellis's residence.

Lycopodium selago abounds on all the mountains, generally preferring an altitude of from eight to fourteen hundred feet above the sea.

L. inundatum I only found in one locality, on the boggy margin of a small lake.

L. selaginoides grows sparingly on most of the wet mountain sides, and on the banks of some streamlets abundantly: in some specimens the spikes were five inches and a half in height. I found this fern on the summit of mountains one thousand nine hundred feet above the sea.

Isoetes lacustris is abundant in several of the lakes.

Pilularia globulifera grows in great abundance on a stream flowing from Pollacappul Lough; but I was only able to discover one or two specimens bearing pills.

Bradford, September 29th., 1851.

A DEVONSHIRE COPSE RAMBLE IN JUNE.

BY S. HANNAFORD, ESQ., JUN.

"The garlands fade that Spring so lately wove,
Each simple flower, which she had nurs'd in dew,
Anemones that spangled every grove,
The Primrose wan, and Harebell mildly blue,
No more shall linger in the dell,
Or purple Orchis variegate the plain;
Till Spring again shall call forth every bell,
And dress with humid hands her wreaths again."

CHARLOTTE SMITH.

It is wonderful to see how great a change has taken place in our woods and fields, within the last month. Then they were filled with Spring flowers innumerable; now, scarcely any can be seen, except the Germander Speedwell, (*Veronica chamædrys*), the Spiked Speedwell, (*V. spicatu*),

“Looking up with gentle eye of blue,
To the younger sky of the self-same hue,”

With a few of the Cranesbills. But they have given place to others as beautiful, although perhaps not quite so highly valued as those which come as “bright harbingers of Spring.” The foliage of the trees is now in perfection—the dark shades of the Oak and the Sycamore contrasting beautifully with the paler tints of the Ash, and the rich spike of white flowers of the Chestnut. The air is filled with sweet odours, and everything is full of freshness and vigour. William Howitt, in one of his very many charming works on the country, says, that if ever he was tempted to turn angler, it would be *now*; merely for the pleasure of rambling by a quiet stream away from the cares of the world, amidst the beauties of nature; even though taking not a single fin. Does not this find an echo in the heart of many a true lover of nature? What can equal the rosy tints of the Apple blossom, which we see in all directions in Devonshire? one tree white; another the richest crimson; others too of a more delicate hue, tempting us almost to exclaim with Ebenezer Elliott,

“What virgin’s cheek
Can match the Apple bloom?”

There cannot be a more delightful walk than through some of our Devonshire Copses. Perhaps a few lovers of Botany will ramble with me for a while through one of them. About a mile from where I write is Bidwell Copse, at one time famous for the numerous pic-nics which took place there, under the shade of a fine old Oak, cut down about twelve years since, which bore the name of Bidwell Oak. Round this tree seats and a stone table were placed, and a stream of the purest water ran underneath. The beauties of Bidwell were lauded a hundred years ago, by Dr. Benjamin Kennicott, the able divine and literary critic—a native of Totnes:—

“O beauteous Bidwell! dearest rural seat!
May endless verdure deck thy soft retreat;
With thee dwell every joy! Thy silver stream,
By swains and nymphs be sung in pleasing theme.
Rise into glory—call the poets forth,
To pay the debt of justice to thy worth.”

MSS. POEM, 1750.

The Copse is entered by crossing a little rustic wooden bridge, under which ripples a clear brook,

“Babbling so wildly of its lovely daughters,
The spreading Blue-bells.”

KEATS.

Which runs into the Dart about half-a-mile below. Everything here appears

refreshed by the heavy showers of late; and we scarcely know which way to turn first, for there is beauty on every side, and everywhere we are "Brushing ancle-deep in flowers;" so let us along these overgrown pathways and explore for ourselves. On all sides we are saluted by the sweet-smelling Wild Honeysuckle (*Lonicera periclymenum*),—

"That sweet Honeysuckle, which
Is fair as fragrant."

CARRINGTON.

And the delicious Sweet-Brier, (*Rosa rubiginosa*;) "Rain-scented Eglantine" and "Dew-sweet Eglantine," as that pure soul Keats sweetly called it. Here too, is another flower which casts its fragrance around—the Bastard Balm, (*Melittis melissophyllum*.) It can scarcely be overlooked, as it grows nearly two feet in height; the flowers white, and the lower lip marked with a dull violet; leaves large and much serrated: the flowers, as well as the leaves, retain their delightful smell when dried. Now we come to one of the handsomest of our wild flowers, the Foxglove, (*Digitalis purpurea*), with its beautiful drooping, crimson bell-flowers, spotted and hairy within. It appears to flourish here in dry as well as in wet soils; for it grows luxuriantly on the banks of the Dart, to a height of three or four feet. It is said to be almost unknown in Norfolk and Suffolk, preferring rocky and hilly counties. In Scotland it has various names—"Bloody Fingers," and "Dead Man's Fingers," alluding to to the shape and colour of its flowers. This is a valuable medicinal plant, an infusion of the leaves being frequently used in dropsical and inflammatory cases. The bright yellow flowers of the St. John's Wort may now be found, (*Hypericum perforatum* and *pulchrum*.) To the St. John's Wort is attributed the power of keeping away evil spirits. There is an old legend of a fiend paying his addresses to a lovely girl; but finding that she had St. John's Wort in her bosom, he says,

"Gin ye wish to be leman mine,
Lay aside St. John's Wort, and the Vervain."

On the continent it is usual on St. John's Day, to gather a species of St. John's Wort, and hang it over the cottage doors, and place it in the windows, under the idea that it will prevent evil spirits from entering, and propitiate the saint himself.

The Yellow Meadow Vetchling, (*Lathyrus pratensis*), is peeping forth from the hedge-rows; and the Nettles, (*Urtica urens* and *dioica*), smaller and greater, are both in flower:—

"O'er the throng, Urtica flings
Her barbed shafts, and darts her poisoned stings."

DARWIN.

The leaves of the Great Nettle, (*U. dioica*), are boiled, and eaten as a vegetable by the peasantry in some parts of Ireland.

What a pretty sight it is to see the Dragon-flies, (*Libellulidæ*), of every hue, darting about in all directions over the brook—red, blue, green, white—

as harmless as possible, although generally considered to have the power of stinging! And here let a word be said for the little Water Eft, or Evit, as it is more generally called in this neighbourhood, so common in every pool of water, and so much despised for its supposed venomous qualities. It is quite harmless, and does not possess the means of stinging, as any one may prove by taking one into his hand.

By the side of the stream we may find the Common Watercress flowers (*Nasturtium officinale*;) and the handsome Yellow Iris, (*Iris pseudacorus*;) which Withering calls the "Fleur de lis," although other Botanists have given that name to the Purple or Stinking Iris, (*Iris foetidissima*;) a smaller flower than the last, also common here; and Miss Catlow, in her valuable introductory work on "Field Botany," applies it to both. The Yellow Iris is known in many places as the Flag Sedge and Corn Sedge, and by the Scotch as Water Skeggs. In moist situations the pretty flowers of the Guelder Rose, or Water Elder, (*Viburnum opulus*;) are now opening, and well worthy of notice. The marginal flowers, which open first, and are much larger than those in the middle of the cyme, are destitute of both stamens and pistils. The delicate Butterfly Orchis, (*Habenaria bifolia*;) the Green-winged Meadow Orchis, (*Orchis morio*;) and the feathery cream-coloured flowers of the Meadow Sweet, or Queen of the Meadows, (*Spiraea ulmaria*;) are in abundance here. Amongst the grass we occasionally find a few specimens of Golden Rod, (*Solidago virgaurea*;) but it is more plentiful in Dartington Hill Copse, a little way on; and more rarely still, the beautiful flowers of the Milkwort, (*Polygala vulgaris*;) Here they are blue, but elsewhere in the neighbourhood they may be found pink and white, the more general colours.

It would, I fear, tax too much the patience of my companions in this lovely ramble, to introduce to their notice all the plants which flower this month; there are still, however, to be found here the Wood Betony, (*Betonica officinalis*;) the rosy flowers of the Mallow, (*Malva rotundifolia*;) the Bugloss, (*Lycopsis arvensis*;) with its handsome purple flowers and bristly stem and leaves; and the delicate pink ones of the Lesser Willow Herb, (*Epilobium parvi florum*;) and adjoining the copse the Red Poppy, (*Papaver Rhæas*;) the Car Woundwort, (*Stachys arvensis*;) the Pimpernel, (*Anagallis arvensis*;) and the Wild Heartsease, (*Viola tricolor*;) are enlivening the corn-field with their bright-coloured flowers. I trust many who glance over this hasty sketch will visit this delightful spot, and

"Pay the debt of justice to its worth."

Totnes, Devon., June, 1851.

THE NIGHTINGALE, (*PHILOMELA LUSCINIA*.)

BY R. A. JULIAN, ESQ., JUN.

I WAS quite delighted to observe such well authenticated accounts recorded by Mr. Bird, (at page 176 of "The Naturalist,") of the Nightingale having frequently occurred in some parts of Devon. That gentleman, however, seems to hint that observers are wanting in other parts to note the appearance of it there also; I think the following query will be sufficient to stagger his opinion:—

Is it probable that if the Nightingale frequently visited localities between Plymouth and Kingsbridge, the latter having been the residence of that very accurate observer of nature, Colonel Montagu, he would have noticed it on only one occasion? I have many times been informed by persons in the neighbourhood of Plymouth, that during such a night they had heard a Nightingale singing; but whenever I had an opportunity of accompanying them to the spot on a future occasion, I have always been disappointed, the supposed Nightingale proving to be a Woodlark, a common species with us, and one which sings much during fine nights, and possesses notes but little inferior to the far-famed warbler. I have had frequent opportunities of observing the habits of the Nightingale in the neighbourhood of Cambridge, where, in the season, this species abounds. It frequents spinnies and thickets about here, distant from as well as near water. Of a fine evening I have heard quite a dozen in a narrow plantation adjoining the high road between Cambridge and Trumpington. When all around is quiet, it delights to pour forth its pleasing and ever-admired notes and strains from a conspicuous situation, such as the branch of a tree above, or a top part of a thicket, into which, when disturbed, it immediately resorts for protection, and will warble away within a few feet of an intruder, or utter a croaking note, much resembling that of the frog; defying the sharpest eyes to get a good view of it.

This birds sings much during the day as well as night, more especially on its arrival. A clod thrown into the thicket, or a rustling among the leaves, is enough to make it commence, even if previously silent, its truly admirable ditty. There is something in the formation and situation of the nest, placed usually in some thorn stump, and not unfrequently touching the ground, at the foot of a tree among a group of nettles or other weeds, to delight the eyes of a spectator. The uniform olive brown eggs, (the shades varying a little in different nests,) from four to six, and rarely seven in number, deposited on a neat lining of horse-hair or fibres, and frequently both mingled together, within an exterior of dead leaves seemingly carelessly, but nevertheless skillfully put together, are well worthy the notice of the lover of nature. I could say more in favour of this elegant-formed, though not bright-coloured summer sojourner with us, but I must forbear, as I feel incompetent to give it its due meed of praise,

Emmanuel College, Cambridge, November 7th., 1851.

NOTES ON THE BLACK REDSTART, (*PHÆNICURA TITHYS*.)

BY JOHN GATCOMBE, ESQ.

THE Black Redstart is a regular winter visitant to the neighbourhood of Plymouth, arriving generally the first week in November, and departing at the end of March, or very early in April. They frequent the cliffs and rocks along the coast above high water mark, and quarries in the vicinity of the sea: ramparts of fortresses and stone buildings of any kind appear attractive to them. They are sometimes seen in churchyards, flitting about on the tombstones, and making short excursions in the air after insects, much in the manner of the Flycatchers. They are also particularly partial to the vicinity of old stone arches and caverns, where they will immediately hide when pursued, and remain concealed for a length of time.

During the first week of their arrival these birds are rather plentiful, but after that time they disperse, though I have observed that a favourite locality is seldom without its Blackstart during the winter; and should one be killed another takes its place in a few days. They appear very liable to be caught in traps, for I have, on several occasions, obtained them with their tails and wings clipped apparently with a pair of scissors; in one instance I shot one with its tail cut short, and a piece of red worsted tied round its leg. The majority of birds that visit us are the young of the year, old males being very scarce and shy. In their actions, these birds, in many respects, resemble both the Robin and Wheatear.

In plumage these birds vary considerably: I have obtained them with black breasts, yet without a shade of white on the tertials; then again with the white on the wings very strong, and not a sign of black on the breast: this appears to me very strange, as the black almost invariably appears before the white. The young males of the year are easily distinguished from the females, by being of a more uniform slate grey, without the brown tinge that is observable in the female. It appears that the males are several years in arriving at their full plumage; in very old birds the back is almost as dark as the breast.

Wyndham Place, Plymouth, October, 1851.

ON THE COMMON DUNG BEETLE, (*BOLBOCERAS MOBILICORNIS*.)

BY MR. MICHAEL WESTCOTT.

THE extraordinary muscular power of the above Beetle was wonderfully exhibited to me the other evening. Having caught two of these Beetles, I wrapped them up in my pocket-handkerchief, and by the time I reached home they had eaten several large holes in the handkerchief. It being late I placed them under two high brass candlesticks, about three-quarters of a pound each.

In the morning I found the candlesticks were removed from where I had left them, one about eight inches, and the other nearly so, and the Beetles gone. I was surprised at this, not being aware that so small a creature was capable of making its escape from so strong a hold. The next evening I captured two more, which I took home, and placed them separately under the same two candlesticks, upon a rough deal board. I soon observed the candlesticks to move backwards and forwards in quick succession. I then placed a two-pound weight on top of one of the candlesticks, and then the Beetle moved the whole, two inches in three-quarters of an hour: the weight being altogether two pounds and three-quarters. Any person who wishes to be convinced by personal observation, of course has an opportunity to try for himself.

Since receiving the above, we have been favoured by Mr. Westcott with a specimen of the Beetle, which however was dead; it proves to be *Bolboceras mobilicornis*; along with it were the following additional observations. The muscular power of many insects is extraordinary as compared with that of any of the higher animals.—*B. R. M.*

Inclosed is a specimen of the Dung Beetle, which I hope is alive, so that you may be able to try a similar experiment to the one which I had the pleasure of witnessing. Willing to ascertain if this one was as strong as its congener, I placed it under a candlestick, which is twelve ounces; but I am not sure that it was the same candlestick as in the former case, however the Beetle was under, and I put three pounds eight ounces on the top, and strange to say, the little animal moved the four pounds and a quarter, nine inches, in four teen minutes. It was with interested attention I watched it perform the Herculean feat. I put a second under, but the candlestick did not move; I lifted it up smartly and I found they were using their strength in opposition to each other. I put it over them again, and presently it began to move very rapidly, nearly quarter of an inch at a time; then they were both united in their efforts to escape, and which they would have readily accomplished if it had been the candlestick alone which detained them. Next I allowed one to crawl partly out, so that the edge of the candlestick rested on the centre of the thorax, and by two or three hard struggles he cleared himself from the pressure. Anxious to see how it managed to move its weighty prison, I placed one under a runner glass, and after it had been enclosed for a short time, it took a firm hold of the tablecloth with its mandibles, and the hooks of its two fore legs, and then by gradually raising the abdomen, it forcibly pushed the glass along. But it could not move the glass alone but very slightly, owing to the smoothness of the interior.

By observing the habits and economy of the Dung Beetle, it is evident that great muscular power is required in the important office of multiplying its species. For this purpose the female bores holes a considerable depth in the earth, and deposits her eggs at the base, rolled up in little pellets of horse or cow dung, and leaves them until the return of spring, when the eggs are

hatched, and the little creatures escape from their loathsome covering.

If the elephant were as strong—in comparison to his enormous bulk—as the Dung Beetle, what a formidable enemy would he be! Bulwarks, towers, and cities, alike would be subject to his powerful and ruinous attacks. But here the wisdom of God presents itself; for according to the economy of nature, no one individual species requires strength: they are all endowed with sufficient to perform the duties assigned them; and where strength is deficient, contrivance is resorted to with success.

Wells, Somerset, October 13th. 1851.

NOTICE OF THE
ARRIVALS OF THE SUMMER BIRDS OF PASSAGE,
AT HENLEY-UPON-THAMES, IN 1851.

BY MR. C. STUBBS.

NO.	NAME.	WHEN FIRST SEEN.
1.	Chiffchaff,	March 30.
2.	Whitethroat,	April 3.
3.	Wryneck,	„ 11.
4.	Redstart,	„ 13.
5.	Chimney Swallow,	„ 13.
6.	Bank Martin,	„ 13.
7.	Nightingale,	„ 17.
8.	Blackcap,	„ 18.
9.	House Martin,	„ 18.
10.	Cuckoo,	„ 21.
11.	Sedge Warbler,	„ 24.
12.	Reed Warbler,	„ 26.
13.	Titlark,	„ 30.
14.	Common Sandpiper,	„ 30.
15.	Swift,	May 7.
16.	Turtle Dove,	„ 11.
17.	European Thicknee,	„ 12.
18.	Lesser Whitethroat,	„ 11.
19.	Flycatcher,	„ 15.
20.	Land Rail,	„ 19.
21.	Goat Sucker,	„ 27.

Henley-upon-Thames, October 1st., 1851.

Miscellaneous Notices.

The Hare.—In the summer of 1845, I obtained a young Leveret, which in a few days became very tame and familiar, so much so, that on placing it on a table and plucking its fur, so as to tease it a little, it would continue to combat with me as long as I chose, by darting at my hand with its fore paws, at the same time uttering a sound somewhat between a grunt and a hiss. It was very fond of milk, which it lapped out of a saucer like a Cat. At this time I had a very handsome and sagacious little Cocker Spaniel, named Clara, and a large Cat, neither of which manifested the least inclination to harm my little foundling; on account, I suppose, of seeing me caressing it; nor did the Hare betray any dread of their company, or seek to avoid them in any way; on the contrary, it was my usual custom to cause all three to lap milk together out of the same dish; and it was certainly a curious and interesting sight to witness the natural instincts of three dissimilar animals so far perverted by civilization, if I may use the expression, as thus to feed peacefully and confidingly together, without seeming to be aware of the enmity that nature originally placed between their races.—*A. S. Moffat, Bewick Folly, October 21st., 1851.*

White Rat.—A white variety of the common House Rat was killed a few days since by a Rat-catcher, while pursuing his avocation in the stables of an inn in this city; but was so mutilated by the man's dog before he could get hold of it, as to render its preservation impossible.—*F. M. Burton, Lindum House, Lincoln, October 20th., 1851.*

Lark's eggs taken from the stomach of a Hawk.—In visiting one day a collection of birds and eggs, belonging to a bird-stuffer in this town, I was shewn two *Lark's eggs*, uninjured, which I was assured had been taken from the stomach of a Goshawk in the spring, which had been sent to him for preservation. At first I could hardly credit this; but on careful inquiry, I find the statement to be correct. Can any of your readers inform me how the Hawk could have taken up and swallowed such delicate eggs without injury to them.—*F. Hyde D'Arcy, Home Mead, Lympington, Hants., July 30th., 1851.*

We have received the following corroboration of the above curious fact from Mr. Curtis, who stuffed, and Mr. Cox, who was present when the eggs were discovered in the crop of the Hawk.—*B. R. M.*

Sir,

This is to certify that the assertion made by me to Mr. D'Arcy, respecting the eggs being taken from the crop of the Goshawk, is quite correct. I received the bird a few months since, to stuff for the person who shot it; and perceiving something hard in its crop, I was very careful in opening it; when, to my great surprise, I took therefrom two perfect Lark's

eggs, which I cleaned and blew. They are now in the possession of Mr. D'Arcy.—*W. Curtis, Lyminster, September 30th., 1851.*

Witness to the above, *T. Cox.*

P. S. The person who shot the Goshawk, and has it in his possession, is Mr. Lightfoot, of Bashley, near Lyminster.—*W. C.*

Nidification of the Moorhen, (Gallinula chloropus.)—With regard to the nesting of the Moorhen, I have no doubt but that the period mentioned for the appearance of the first brood, by your correspondent, J. C., may, as respects Devonshire, be correct; but at the same time I may not be altogether out of my reckoning. J. C. writes from Devonshire, I from the north-east corner of Lincolnshire. In these two very far-distant counties, the difference of climate will surely make a corresponding difference in the time of nidification. When I left Lincolnshire this year for the south, in April last, the Rooks for instance, were not at all advanced to that state when it is considered desirable to make them into pies; but when I arrived in Bedfordshire, I found the Rook-shooting commenced. Partridges are forwarder in the south than here; and with regard also to vegetation, the corn is at least from two to three weeks in advance of us in the more southern districts; and the south of this county has even great advantage in this respect over my more northern habitat. I am sorry I was from home during the hatching of the first brood of Moorhens this year; but when I left in the last week of April, I could find no symptom of a nest, indeed there was no cover in our ditches or ponds to afford one a shelter. Some few in this district possibly may, and probably do, hatch earlier than the end of May, in localities that are well adapted for their purpose, in well sheltered situations in the neighbourhood of stack-yards, where food is abundant, and in what are termed "early seasons;" but I think the bitter cold springs we are subject to, and the want on that account of proper cover in this district, may easily account for the difference of a week or two in our accounts of the Moorhen's nesting. In the "*Zoologist*," page 722, I find the following, from the pen of A. Newton, Esq., Eldon, Suffolk:—"Moorhen's first egg laid 23rd. of April." Allowing all the eggs to be laid by the 1st. of May, they would not be hatched until the latter end of the third week, three weeks being the time of incubation. Again, Yarrell, vol. iii., page 33, "*The first brood generally are hatched the end of May.*"—*R. P. Alington, Swinhope, November 8th., 1851.*

Anecdote of a Moorhen, (Gallinula chloropus.)—I was witness the other day to an instance of the love of liberty in the Moorhen, which perhaps may be worthy of notice. I was walking along the banks of the Rodding, in Essex, with two retrievers, when they flushed a Moorhen; and, after having hunted it for some time, I discovered it close under the bank where I was standing; but on my attempting to capture it, it deliberately dived to the bottom, (the water was not above eighteen inches deep,) and remained under water while I

threw off my garments; and on taking it from the water life was nearly extinct, thus preferring, it appeared, death to captivity.—*Samuel Howell Carter, Bruce Grove House, Tottenham, October 2nd., 1851.*

*Carnivorous propensity of the Gull family, (Laridæ).—*I see in "The Naturalist," an account of the carnivorous propensity of the Herring Gull, (*Larus argentatus*.) My belief is that all Gulls, when pressed for food, are carnivorous: I can answer for several from my own experience. The Greater and Lesser Black-backed Gulls, (*L. marinus*, and *L. fuscus*,) I have had in my garden for some time, and their food is chiefly flesh of some kind: rats they are particularly fond of, and the Greater Black-backed makes no difficulty in swallowing half-grown ones; and should they be three-parts grown, a good soaking in some water makes them disappear as easily as their younger brethren. The Common Gull, (*L. Canus*,) and Black-headed Gull, (*L. ridibundus*,) also are fond of the same food; in fact when I feed some trained Merlins which are fastened by their traces to stones on the grass in front of my windows, if not watched when fed, the Gulls soon have the food away from them. Blackbirds which are caught in small rat-traps in my garden, if not soon removed, are sure to be killed and eaten by the Gulls, Common and Black-headed. I shot, in January 1850, an Iceland Gull, (*L. leucopterus*,) on the beach near Southwold, (at Benacre;) it was in the act of feeding upon the remains of a Lesser Black-backed Gull. A friend of mine, who for years kept tame Gulls, was obliged to get rid of a Larger Black-backed Gull, on account of his propensity for eating, or bolting I should say, young chickens. The Herring Gull, (*L. argentatus*,) I have also kept in confinement for some time on flesh. The Kittiwake I never had, but have no doubt of its doing well on the same kind of food.—*John Farr, Benacre, Suffolk, October 22nd., 1851.*

*Red-necked Grebe, (Podiceps rubricollis).—*Three specimens of this bird, shot near York, came under the notice of Mr. D. Graham, of this city, the last week in January and the first in February, 1850, of course in the winter plumage. The *irides* of all these specimens were of a *dirty yellowish white colour*, and not red, as is usually recorded. Two of these were the only specimens of this bird that have ever come under my notice in the flesh; and I should be glad to know if my observations on the colour of the *iris* can be confirmed by other observers, and also if it holds good in the bird in summer time.—*B. R. M.*

The Cuckoo.—I suppose sufficient has been said respecting the Cuckoo, but perhaps the following may be considered worthy of recording. The weather was remarkably mild during the month of February in the neighbourhood of Torquay, and I was truly surprised to hear the Cuckoo at that unseasonable time. It remained with us a fortnight during the fine weather; its voice was as strong and clear as ever; I heard it in May or June. The spring was afterwards cold, and we did not hear the Cuckoo again till later than

its usual time of appearance. I thought every person acquainted with country life was aware that the Hedge Sparrow, (Accentor,) and Wagtail were generally selected as the foster parents of the young Cuckoo; indeed, among our large woods in Hampshire, where the Cuckoo is so common, the Hedge Sparrow is most often the parent. No instance of a young Cuckoo being found in a Titlark's nest ever came to my knowledge till one of the men here, in cutting some grass among the young trees, happened to wound the young bird in the nest; the Titlark was flying round with food. I am, however, informed that the Titlark's nest is mostly selected for this purpose in South Devon. A young Cuckoo was hatched in a Wagtail's nest, close by the steps of a small pond in the flower garden at Highclere; it became remarkably tame, and remained on the lawn during a great part of the summer. I recollect Lord Carnarvon, and the company visiting Highclere House, being much amused by the singular way in which it was fed. As the bird grew larger, it of course required more food, and the poor little Wagtails were kept busily employed flying about, and nearly every minute one or other alighted on the Cuckoo's back, when it turned its head round and opened its large beak to be fed. I thought at the time it would form a very pretty subject for an artist; and if this is common, I wonder advantage has not been taken of it, for it would form a very pleasing picture.—*James Carton, Gardeners' Journal, October 4th., 1851.*

Note on the Cuckoo, (Cuculus canorus.)—In a hole four inches and a half high, three inches and a half wide, ten inches deep, and four feet from the ground, in the wall of a dwelling-house, and not thirty feet from the entrance door, where people are continually passing and repassing the whole of the day, in the parish of Walton, the property of the Marquis of Bath, last year a Cuckoo laid her egg in the nest of a Robin. The Robin's eggs were thrown out, and the Cuckoo was hatched and fed till she became too large for her contracted habitation, when she worked herself out, and fell on the ground, from whence she was removed, and put into a cage and hung against the wall, just above the hole. She continued to be fed by the Robin for a long time, when she was set at liberty and flew away.—*William Reynolds, Walton, near Glastonbury, September 15th. 1851.*

Occurrence of the Grasshopper Warbler, (Salicaria locustella.)—Heard one of these birds August 17th., 1851, uttering its grinding notes in a thicket of low thorns and brambles, on the side of the Dartmoor Railway, at about two miles from Plymouth. During last season I obtained thirteen of these Warblers in the neighbourhood of Cambridge; the date of a visit in pursuit of them, to Wicken-fen, which I perceive the Rev. F. O. Morris rightly notices my omitting, I find on referring to my note-book I neglected to enter; as near as I can trace, it was within two days of May 15th., 1851.—*R. A. Julian, Jun., November 7th., 1851.*

Note on the nesting of the Jackdaw, (Corvus monedula,) in the Scotch fir.—Having noticed the Jackdaws flying in and out of the evergreens in Woburn Park, very frequently this summer, and knowing there was not a sufficient number of decayed trees to allow of their building in holes that might be in them, in fact where I saw them the most busily engaged was where the bulk of the trees are fir, the outermost ones being mostly rhododendrons, laurels, and other evergreen shrubs, I thought this a singular place for them to build in; but singular or no, they have built there, and not in holes. The Jackdaw has chosen a forked branch, and has built a large nest in the fork; the first layer or foundation of it is composed of small twigs, and the remainder of the nest is built of coarse sedge, and lined with fine dry grass.—*G. B. Clarke, Woburn, Beds., October 13th., 1851.*

Alpine Swift, (Cypselus alpinus.)—In the Yeovil Times newspaper, of September 23rd., I see an account of the anniversary of the Somersetshire Archeological and Natural History Society, at which meeting a Mr. B. Fry, of Axbridge, exhibited a specimen of the Alpine Swift, a very rare bird in this country, which was shot by S. L. Fry, Esq.—*Idem.*

Carnivorous propensity of the Barn-door Fowl.—One day last winter, while passing a neighbouring farm-stead, I was surprised by the tenant, Mr. R. Morrison, holding in his hand a Hen of the Common Fowl quite dead, being suffocated in consequence of its having endeavoured to swallow a large mouse, which some boys had killed while a stack of corn was being taken down to be thrashed.—*A. S. Moffat, Bewick Folly, October 21st., 1851.*

Heronries.—In addition to those already mentioned in "The Naturalist," there is one existing in Chillingham Park, Northumberland, the seat of the Earl of Tankerville.—*Idem.*

Materials used in the nest of the House Pigeon.—Having seen in "The Naturalist" some communications concerning the nesting of the House Pigeon, perhaps the following remarks may be interesting:—In a large Pigeon-house, I last year kept from thirty to forty pair. The laying-holes were built of stone; in some of these I had nests made of hay, and in others of straw; in the former the Pigeons *very rarely* laid, and, I believe, *never* hatched their eggs; in the latter some few were reared; but the Pigeons did not seem partial either to hay or straw. The most favourite laying-place appeared to be the bare stones, until, from having reared their young in the same spot time after time, a kind of nest was formed by the accumulation of their own dung. There were five or six nests made of twigs roughly put together, which were principally of elm, of which wood there was a stack close by. I never knew Pigeons use straw or any other similar material in making their own nests; but I was not aware that the use of twigs for that purpose was an unusual circumstance, as I have frequently observed it.—*A. M. Norman, Eglesfield, Yatton, Somerset.*

The House Sparrow, (*Passer domesticus*), sometimes builds its nest in trees, although many little snug holes and corners in old buildings may be close at hand; however, when this whim induces him to construct the large oval-shaped nest, rather flat at the top, it is composed of hay, lined with feathers, in such profusion that a pillow might soon be stuffed with the contents of a few. I have invariably found them in the thick part of a holly in preference to any other tree, indeed I never found them in any other in this locality, (Pannal.) It is generally built about eight feet from the ground, often near road-sides and footpaths much frequented: the little fellow seems to place great confidence in his stronghold. The entrance, a little hole in the side, is generally fronting the south. A farmer had dislodged a couple of Sparrows which had built under a spout, and after taking the nest and eggs, he stopped up the hole with mortar. You would naturally suppose they would forsake this locality after such a sorrowful proceeding; but nothing disconsolate, they soon fixed upon a new site—a fine holly bush was close at hand—a nest was constructed, and a family reared in safety. Who can but admire the perseverance displayed under such adverse circumstances? Such little examples may be of profit even to ourselves. A singularly-coloured Sparrow was observed a short time ago at Sheepscar, near Leeds; it possessed the common characteristics, excepting the primaries and tail, which were white.—*J. Dixon*, 7, *Copenhagen-Street, Leeds*, October 11th., 1851.

Early nesting of the Thrush, (*Turdus musicus*).—There was a nest with four young Thrushes fully fledged, in the beginning of February last, near Winchester.—*F. Hyde D'Arcy*, *Lymington, Hants.*, September 20th., 1851.

Yew Fruit, (*Taxus baccata*).—I can confirm the statement as set forth in page 74 of "The Naturalist," by Mr. McIntosh, of the innocuous property of the Yew Fruit, as I have partaken of it myself, and have seen numbers of others eat it without experiencing the least ill effects. In a garden adjoining our premises is a Yew tree, to which, during the winter, several Thrushes and Blackbirds come to eat the berries so long as they last; the stones or seeds passing through them undigested, in consequence of the hard shell round them, lie at the bottom of the tree until the following spring, when there invariably comes a Nuthatch or two to partake of the seeds which have passed through the Thrushes, etc., during the winter. I have noticed the little fellow many a time, fly down and bring a seed up in his beak, and place it in a crevice on the top of a wooden post in the garden, then hammer away at it with all his might, until he succeeded in splitting it in two, when he would eat the kernel, then fly down for more until satisfied. The post mentioned above having been used a number of years, and being partly decayed, is completely studded all over with the empty shells of the Yew, which have been driven so firmly in as to remain there until they decay. The Hawfinch also partakes of the seeds of the Holly and Hawthorn which have passed through the Thrushes,

etc., during the winter, which they crack with their powerful bills; I have myself startled them from under a Holly tree in the spring when so engaged.—*G. B. C.*

Instinct in Fish.—We were seated on the banks of the Ure, near Ripon, on a very close sultry day, killing time by examining a few of the many prettily-coloured pebbles scattered at our feet, when a violent commotion in the river, a few yards above us, suddenly attracted our attention. Feeling curious to learn the cause, we stealthily approached the scene of action, in sufficient time to discern the outline of two fine Pike, and on proceeding a little further, where the river becomes shallower, a very large shoal of Trout darted off into deep water. We were at no loss to form our own opinion on the circumstance witnessed, but at once set it down as a curious trait of instinct, feeling satisfied the shoal had retreated to shallow water for safety, as their ravenous admirers were of too bulky a build to keep up the pursuit with advantage.—*J. Dixon, 7, Copenhagen-Street, Leeds, October 11th., 1851.*

Voracity of the Pike.—While out trolling for Pike, on the the 4th. of March, 1851, in a backwater connected with the Till River, a fish of six pounds seized the bait, (a small Trout,) and after roving with it for about ten minutes, gorged it; but owing to the hook being rather too small for the size of the bait, it buried its points in the body of the Trout, in place of the Pike's stomach; nevertheless he continued to struggle violently for possession of his meal, and after nearly fifteen minutes run, only disgorged it when drawn so nearly ashore that I was about to lay hold of him with my hand. The bait being not much injured, I replaced the hook with a larger one, and commenced again to troll in the same standing, when on the first cast, to my surprise, the very identical fish, which I recognised by his wanting the upper half of the caudal fin, immediately seized the bait, and after pouching it a second time, and a fine run, was at length gaffed and creeled.—*A. S. Moffat, Bewick Folly, October 21st., 1851.*

Capture of the Tench, (Tinca vulgaris.)—The Rev. W. Marsden, of Louth, while spinning for Perch with a "miller's thumb," was surprised to strike and land a Tench weighing about a pound with the above bait. I was not aware, until this circumstance took place, that Tench would ever feed upon fish. Have any of your correspondents heard of a similar case?—*R. P. Alington, Swinhope Rectory, Lincolnshire, August, 1851.*

Lottia testudinalis on the coast of Kincardineshire.—In a note at the bottom of page 127 of "The Naturalist," it is stated that *Lottia testudinalis* is not found on the east coast of Scotland. I am sure it will give pleasure to every lover of Malacology to know that there is a locality for this beautiful shell on the coast of Kincardineshire. The place where it is found is in a small bay, immediately south of the Girdleness, known by the name of the Bay of Nigg. It was discovered there some years ago, and in some seasons it seems to be plentiful, and in others rather scarce. The rocks at the place named are

principally Gneiss. I possess a specimen of the shell almost an inch by six-eighths.—J. W., Aberdeen, October 24th., 1851.

Our correspondent has very kindly forwarded us some small specimens of this very elegant *patella*. The discovery of this shell on the east coast of Scotland is interesting, and it is probable that by searching in other favourable localities, some additional habitats might be found.—B. R. M.

Crustacea from the stomach of a Haddock, (Morrhua æglefinus.)—I removed from the stomach of a male Haddock caught by hook and line a few miles from the harbour, the following:—*Alpheus ruber*.—Four perfect specimens and fragments; old and young in abundance. *Gonoplax angulata*.—One old and four young specimens, rather imperfect; fragments of hands, arms, etc. *Atelecyclus heterodon*, Leach, (*Septemdentatus*, Montagu.)—Two full-grown and five young ones; arms and hands in abundance. *Ebalia Cranchii*.—One perfect specimen. *Galathea nexa*.—Three perfect specimens; arms and hands. *Gebia deltura*.—Two perfect specimens; arms, hands, etc., in abundance. *Pagurus Bernhardus*.—Arms and hands. *Portunus marmoreus*.—Carapace, arms and hands of one specimen. In addition to these Crustacea the following were also obtained:—*Turritella terebra*.—Three full-grown shells, empty; two containing *Pagurus lævis*. *Sepiola Rondeleta*, partially dissolved by the juices of the stomach. *Aphrodita aculeata*.—Perfect. All these specimens from one stomach.—W. P. Cocks, Falmouth, May 19th., 1851.

Shells from Trawl Refuse.—This morning Miss Vigurs found in Trawl refuse, the *Voluta lævis*, alive; *Bulla cylindracea*, dead shell; *Fusus barvicensis*, dead shell; *Chemnitzia rufa*, alive; and Dr. Vigurs a fine living specimen of the *Tritonia Hombergii*—*Molgula oculata*, from the same stuff.—*Idem*.

Sphinx atropos.—The Caterpillar of this Moth was captured by me at Coatham, in the same garden as the Rose Pastor, feeding on potatoes, where it has been regularly taken for the last three years: it measured three inches and a quarter. A similar specimen was taken at Marske, near Redcar.—D. Ferguson, Redcar, October 8th., 1851.

Review.

Phyto Theology; or, Botanical Sketches intended to illustrate the Works of God, in the Structure, Functions, and General Distribution of Plants. By JOHN HUTTON BALFOUR, M.D., Professor of Medicine and Botany, University of Edinburgh. 1851.

ONE marked feature of the present day is the rapidly increasing taste for scientific knowledge among all classes of the people, and the corresponding facilities afforded for its acquirement. The importance of such knowledge is now pretty generally acknowledged by those whose daily employments call upon them for a certain amount of scientific information, as well as by a large class

who pursue it solely for the gratification and intellectual delight which its acquirement affords. Of all branches of Natural Science, Botany is perhaps the one which has of late years increased most rapidly in popular favour, for it is a science which recommends itself in an especial manner to all classes and conditions of society, irrespective of age or sex; indeed "a science calculated to give pleasure to every mind. Though relating to living and organized beings, the prosecution of it calls for no cruel experiments, nor for any researches which could excite feelings of disgust, even in the most sensitive heart. It is a study which can be turned to account in every situation, whether in the closet or in the field, on the highway or on the hill-side, on the cultivated plain or in the wild mountain glen. Every flower on which we tread becomes a useful object of contemplation, and a means of pleasing recreation, even amidst the cares and toils of life."

How important then that this, the loveliest and most delightful of all the sciences, should be pursued in that true spirit of devotion which ought to characterize all knowledge, and which is especially due in the contemplation of God's own wondrous works. "How important is it that such knowledge should be solid and substantial—not 'science falsely so called, which some professing, have erred concerning the faith,' nor the 'perverse disputings of men of corrupt minds and destitute of the truth,' who erroneously view reason as opposed to revelation. If the fountains are poisoned, it is not to be expected that those who drink at them will be sound and healthy. Instances are, it is to be feared, not uncommon of parties who, by the acquisition of unsanctified scientific information, have been led into the depths of infidelity and pantheism; making their very knowledge the means of perverting others, and of throwing ridicule and contempt on everything relating to man's fallen condition, and God's glorious plan of salvation."

It cannot be said that Botany, and the truths which it makes known concerning God's works, have ever been so conspicuously placed in opposition to the truths of God's Word, as has been too often attempted with other departments of science. But we very much fear that, in too many cases, Botanical studies are pursued in a secular spirit; that in the admiration and study of things temporal, sight is lost of the higher things eternal. How many the books, excellent so far as their *science* is concerned, lofty and exuberant to admiration in their descriptions of the wonders of Nature, and yet silent on the great, the glorious, all-engrossing subject, which concerns the spiritual welfare of man, and to which all knowledge ought to be made subservient. It has been said that science never assumes a more noble attitude than when she kneels at the foot of the cross; but this is the attitude in which she ought always to be—her eye of hope directed to heaven. How meet the union of science and religion! "Science is the mind, as intellect or understanding, contemplating Nature as a great series of phenomena, dependent on each other, and linked together by forces and principles, which it is its part to disclose. Religion is the mind, as faith, contemplating Nature, Man, and itself, neither

simply as series of successive changes, nor merely as magnificent apparitions of loveliness; but as they declare the existence, proclaim the perfections, repose in the shadow, rise toward the throne, and are illustrated and supplemented by the Word of God."

The object of Professor Balfour is to present in this book the leading principles of the science of Botany in a form suitable for general readers, and to lead to the contemplation of Vegetable Phenomena in a christian spirit. These purposes he has most successfully carried out; the tone of the whole work exhibits a truly christian spirit; and we have sincere pleasure in recommending it to the attention of our readers.

Proceedings of Societies.

Yorkshire Naturalists' Club, Monthly Meeting, November 5th., 1851.—The club met as usual at Mr. Graham's, in Jubbergate. D. FERGUSON, Esq., of Redcar, occupied the chair.

F. GIBBES, Esq., of Northallerton, in reference to the subject of the occurrence of foreign bodies in hen's eggs, which had been mentioned at the July meeting, shewed a large diagram of the digestive organs of fowls, and expressed his opinion that no body of the size of a shilling could pass from the gizzard into the intestines, but he admitted that if it found its way into the oviduct, it was quite possible for it to be included in the albumen of the egg before it received its calcareous envelope. Mr. North and Dr. Morris both thought it difficult to assign limits to the expansibility of any of the canals in the living body. The Chairman inclined to Mr. Gibbes' opinion.

MR. BAINES shewed a goose's egg which had a smaller egg within it. Also, a large reddish brown tick, which had been taken from the upper lip of a hare.

THE CHAIRMAN exhibited a number of beautifully-mounted sea-weeds, which he had received from Plymouth.

MR. CHARLESWORTH and DR. MORRIS both shewed some elegantly prepared specimens of sea-weeds, which they had received from the Rev. Dr. Landsborough, of Saltoats, N. B., the well-known author of a very valuable little work on British Sea-weeds.

THE CHAIRMAN exhibited a collection of grasses, one of mosses, and one of the *Hepaticæ*, which had been prepared by the pupils of the agricultural school, at Ayton, near Stokesley. They were very nicely got up, and correctly named.

MR. T. ALLIS mentioned that a friend of his had shewn him some wheat which he had grown, which had the external appearance of barley. It, however, *tasted* like wheat.

MR. GIBBES exhibited a specimen of the Great Shrike, (*Lanius excubitor*,) procured near Northallerton.

MR. RICHARDSON exhibited a very interesting series of Alpine plants, which he had procured and collected in Switzerland, this summer.

DR. MORRIS exhibited a specimen of Ray's Bream, (*Brama Raii*,) which Mr. E. Wood had picked up in the Richmond market, on October 21st. It had come with other fish from Redcar. It measured twenty-one inches in length. The Chairman stated, that, although generally considered rare, it occurred tolerably frequently at Redcar.

MR. GRAHAM exhibited a curious light-coloured variety of the Hen Pheasant; also a Little Auk, (*Mergulus alle*,) which was procured at Naburn, near York, on the 21st. of October last. He also exhibited a specimen of the young Gannet, (*Sula alba*,) which had been caught when asleep, in a field near Beverley. Also, a very fine specimen of the Otter.

MR. CHARLESWORTH read an extract from a letter from a gentleman in America, to Mr. W. P. Cocks, of Falmouth, detailing some successful experiments of his, on keeping marine molluscs alive in sea water for months. He also shewed a very neat plan for mounting small shells safely. The shells were first fixed on slips of cardboard, which were then inserted into a cut in a cork, which then fitted into a small glass tube; by this means they were

perfectly safe, and could be very conveniently viewed. These tubes were fixed to square tablets by means of India-rubber bands. He also laid on the table a list of British Marine Shells, which he had compiled from the splendid work on British Shells, by Forbes and Hanley.

MR. T. ALLIS exhibited four very fine specimens of the rare Moth (*Polia occulta*,) one of which he had taken at Doncaster, two he had received from Perthshire, and one from Cumberland. Also, a pair of the scarce *Cnephasia bellana*, from Cumberland; also, three of *Phusia bractea*, from Cumberland and Cheshire.

On the table were several books, which the committee had bought for the use of the members, and to form the nucleus of a library of practical books. Among them were Dr. Johnston's British Zoophytes; Forbes' British Star-fishes; Landsborough's British Sea Weeds; and Babington's British Botany. Much satisfaction was expressed by the members present, at this commencement of a library, and hopes were expressed that soon other valuable books might be added. After some general conversation the meeting separated.

Entomological Society.—The usual monthly meeting of this society was held on Monday evening, October 6th., 1851.—J. O. WESTWOOD, Esq., President, in the chair.

JOHN CURTIS, Esq., F.L.S., and CAPTAIN H. C. LODDER, were elected members of the society.

MR. S. STEVENS exhibited a fine series of the hitherto very rare *Heliophobus hispida*, taken sitting on rocks in the Isle of Portland; also a new species of *Eupithecia*, from Dover.

MR. E. SHEPHERD exhibited a series of a new species of *Peronea*, reared from larvæ found on *Spiræa ulmaria*.

MR. WEIR exhibited a specimen of *Gelechia centiginosella*, reared from larvæ found on *Genista tinctoria*.

MR. JANSON exhibited some beautiful *Coleoptera*, from the Himalaya.

MR. WHITE made some observations on "Albin's History of British Spiders," and remarked that many of the descriptions were copied verbatim from Dandridge's manuscripts, and without any acknowledgment, whereby Dandridge had been deprived of the entomological reputation to which he was justly entitled. Mr. White also made some observations on Latreille, from which Mr. J. E. Gray dissented, and considerable discussion ensued.

The Querist.

Will Ichneumons pierce Insects in the pupa state?—In reply to this query, some years ago, while collecting in Botany Bay wood, on Chat Moss, I was rather startled on hearing a strange sound from among the dry leaves scattered on the ground, (especially as Vipers are not uncommon there.) On looking closely, I perceived it came from an Ichneumon, in the act of piercing a leaf. On seizing it, I was delighted to have ocular proof that they *will attack pupæ*: the leaf contained a *pupa*, which next season produced *Acronycta rumicis*. I believe few entomologists have witnessed the above: it is the only instance I have met with during several years collecting.—R. S. EDLESTON, Manchester, November 5th., 1851.

Can any of your readers say, for a certainty, how long the different species of Gulls are before they assume the full plumage? I was told of a Greater Black-backed Gull being kept three years and there was no change of plumage. My opinion is that they change their plumage to full, when they *are* three years old.—J. FARR.

Stag's Horns.—I should be extremely glad if any of your correspondents could furnish me with a recipe for preserving the rich brown colour of the Horns of the Moose, and others of the Deer tribe; or restoring them to their freshness when bleached by time; can they be dyed; or would a dark spirit varnish do?—C. J. W.

The Geographical Distribution of our native Water-lilies is by no means well ascertained, and I should therefore feel much obliged by any of your readers communicating their observations of our three native species in different parts of Britain and Ireland.—G. G.

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RUFFED BUSTARD.

THE
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A POPULAR MONTHLY MAGAZINE,



ANIMAL, VEGETABLE, AND MINERAL
KINGDOMS.

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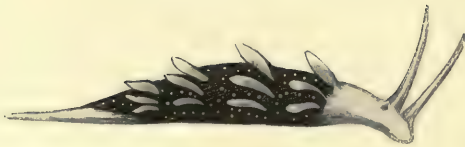
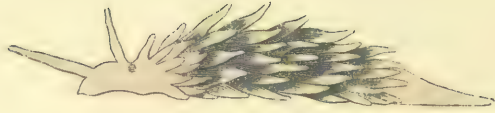
VOL. II.

WITH ENGRAVINGS.

L O N D O N :
GROOMBRIDGE AND SONS, PATERNOSTER ROW.

M. DCCC. LII.





1. *EOLIS ALDERI*. COCKS.

2. *EOLIS COUCHII*.—COCKS.

THE NATURALIST.

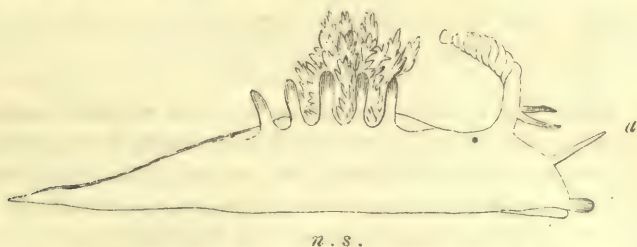
NEW SPECIES OF MOLLUSCA.

BY W. P. COCKS, ESQ.

Eolis Alderi, Cocks.—Body, white, opalescent, about seven-eighths of an inch in length, lanceolate, tapering, pointed behind; oral tentacula, white, long, slender, with yellow tips; dorsal rather shorter than the oral ones, bright yellow; two rows of white branchial plumes on each side of the neck, five on the back and sides; grayish with yellow tips. Found attached to stones in ponds between tide marks, Gwyllyn Vase: rare.

Eolis Couchii, Cocks.—Body, bluish black, with opaque white spots, tapering behind; length, one inch and three-quarters; tentacula, white; dorsal, long, filiform; oral, about one-sixteenth of an inch, shorter and stouter than dorsal; four rows of white transparent branchial plumes, spotted with opaque white; each row, on the sides, composed of three foliations, semi-erect; eyes, black; foot, attenuated posteriorly. I found this beautiful slug attached to the under surface of a stone, on the coral bank, Gwyllyn Vase, extreme low water mark, spring tide.

Eolis glauca, ALDER; var. COCKS.—Body, white, with the exception of the free space between the dorsal branchiæ, which was of a bright yellow colour, with a light brown circular patch in the centre. Branchial plumes, long, filiform, cylindrical, mottled with gray, tipped with white; oral tentacula, white; dorsal, brownish, with yellow tips; length, about two inches. Found attached to the under surface of a stone, Gwyllyn Vase.



Ancula cristata, ALDER; var. COCKS.—The only difference from the *Ancula cristata*, was the non-retractile tentaculum that projected from the anterior part of the animal. (a) It deposited ova seven days after confinement.

Falmouth.

NOTE ON THE MOLE, (*TALPA VULGARIS*.)

BY J. B. DAVIES, ESQ.

WITH regard to Mr. Smee's assertion, quoted in "The Naturalist" of November, by Mr. Hannaford, that the Mole is without eyes, I have it to state, from personal observation, that it is incorrect. In the summer of last year, accompanied by an artistic friend, I was scrambling among the rocks to the north of Duddingston Loch here, in search of *Asplenium septentrionale*, etc., when my companion announced the discovery of the hind quarters of some animal sticking up from among a heap of loose rubbish; it turned out to be a Mole, which we captured, brought home, and kept alive in my room for three days. His temporary habitation was an old tea chest, half-filled with earth, and fitted on the top with glass, through which we could observe his habits. A quantity of worms were mixed with the mould, in order to afford a supply of food; and if Mr. Smee had seen him dart across the box after one of his poor victims, I think he would not have denied him the benefit of sight. I may further add, that he evidently took notice of objects placed in his path, before approaching close to them, and rapidly dived beneath the earth when the hand or any other obstacle was placed before him. As to there being no eyes, or "sockets in the skull to receive eyeballs," I can only say that on the dissection of our subject, with the assistance of a medical friend, we were fully satisfied of the existence of both. I believe, however, that the range of vision in the Mole is very limited; for he took no notice of us so long as we kept at the outside of his box, but nibbled away at his repast with great gusto. A fact which appeared to me to be interesting, and which I had never seen recorded, came under my observation at the same time, that is, that my prisoner positively refused to take a bite, unless he had the worm endway in his mouth.

Edinburgh, November 4th., 1851.

EYES OF THE MOLE, (*TALPA VULGARIS*.)

BY H. K. CREED, ESQ.

HAVING lately been carefully examining the eyes of the Common Mole, (*Talpa vulgaris*), and the parts connected with them, I find, (contrary to Mr. Smee's assertion, in his "Instinct and Reason,") that the "little black tubercles," which are seen on turning aside the hair on each side of the head, have each an optic nerve, communicating with the brain.

On dissecting the head of a Mole, a few days since, I found two nerves connecting the eye with the brain; one of these is the optic nerve, and the other the second branch of the fifth pair of nerves.

If a Mole's skull is examined with attention, three small holes will be found, some way further back than the eye; through the largest of these pass

the optic nerve, and the second branch of the fifth pair of nerves. The two others are very minute, but through them pass the olfactory and maxillary nerves, and those connected with the ear, which is very large. There are no sockets in the skull for the eye, but it is situated in a mass of muscle.

I kept one alive for some days in the spring of 1848. When I was near enough for him to see me, he was uneasy, and tried to bury himself in the mould I had put in his box; and when I dropped a worm in, he immediately made for it, and devoured it rapidly.

Christ's College, Cambridge, December 5th., 1851.

ORNITHOLOGY OF LINCOLNSHIRE.

BY THE REV. R. P. ALINGTON.

IN searching periodicals on Natural History, I find catalogues of ornithological species, from various districts of England; but I am not aware of any complete contribution of that kind from a Lincolnshire correspondent; neither am I going to attempt one. Perhaps a list of species that are *not*, as less tedious, would be preferable to one of those *that are*; inasmuch as the latter would be but an enumeration of nearly all the known species inhabiting this island. This may at once be accounted for, from the variety of surface and soil prevalent throughout the county. Take, for instance, the north-east corner; here you have the high, bleak, but fertile land of the north wolds, the rich tract of the middle marsh, the moorland of the district around Rasen, the fens of Boston, the sand country along the banks of the River Trent, and above all, the flat and muddy coast of the River Humber. There are also, in many spots, large woodlands well adapted for the residence of the *Falconidæ*, and the shyer species of warblers.

In former years the north wold of Lincolnshire was one great gorse cover, and rabbit-warren; the resort of the Dotterel, probably, too, the Bustard, (*Otis Tarda*,) the Stone Curlew, (*Ædicnemus crepitans*,) and a great variety of *Charadriadæ*. In the Boston fens, too, might, and that not uncommonly either, be found the Bittern, (*Botaurus stellaris*,) and Spoonbill, (*Platalea leucorodia*,) etc., etc.: but the great improvement in both districts, the one by draining, the other by enclosure—the change from rush and swamp, from gorse and ling, to fine pasture and grain crops, has banished these once-valued species. The Ruff, (*Machetes pugnax*,) the Stone Curlew, with its wailing cry at the close of the day, the Dotterel, except in a few localities on the sea-coast, during the autumn and spring migrations, with the Bittern and Spoonbill are all but extinct. Among others for ever banished, might, in all probability, be named, (for Yarrell gives them places in the Ornithology of the adjoining counties, Norfolk and Yorkshire,) the Crane, the Stork, the Night Heron, (*Nycticorax Gardenii*,) and Squacco, (*Ardea comata*,) “*cum multis*

alii." Their last grand resort too, though not within the district of which I am now writing, Whittlesey Meer, from which they were accustomed to wander over the neighbouring country, (is it in Lincolnshire? In spite of Sir Walter Scott's assertion "that Roger Wild-drake lived near Squattlesey Meer, in the moist county of Lincoln," (Vide "Woodstock,") we will not claim more moisture than we are entitled to,) has just given way to the spirit of improvement.

I must once again quote that quaint old author Camden, to shew what Lincolnshire once was in respect of Wildfowl:—"Yet the most gainfull trade they have, is by taking fish, and catching wildfoule; and that is so greate, that in the month of August they will spread a net and at once draw three-thousand Mallards and Wild-ducks, and such like together. In regard of this their takeing fish and foule, they paid yearly, in times past, to the Abbat, as now they do to the king, £300 in our own money." Page 531. This quotation applies to the district of Crowland. I now extract one relating to the country in the neighbourhood and on the banks of the Humber:—"All this tract over, at certaine seasons, good God, what store of foules, (to say nothing of fishes,) is heere to be found. I meane not those vulgar birds, which, in other places are highly esteemed, and beare a great price, as Teales, Quailles, Woodcookes, Phesants, Partridges, etc., etc.; but such as we have no Latine names for, the very delicate dainties indeed of service meates for the demigods, and greatly sort for by these that love the toothe so well; I mean Puitts, Godwits, Knotts, that is to say Canutus or Knouts birds, (for out of Denmark they are thought to fly thither,) Dotterels, so named of their dotish foolishnesse, which being a kinde of bird, as it were, of an apish kinde, ready to imitate what they see done, are caught by candle-light, according to the foulers gestures. If he put forth an arme, they also stretch out a wing; sets he forward his legge, or holdeth up his head, they likewise doe theirs. In briefe, whatever the fouler doth, the same also doth this foolish bird, until he be hidden within the net. But these things I leave to their observation, who either take pleasure earnestly to hunt after Nature's workes, or being borne to pamper the belly, delight to send their estates downe their throat."²

But, productive no doubt of much increase of health and comfort to the inhabitants of the aguish districts, the draining-mill, the spade, and plough, which have been the cause of driving away some species, have also encouraged the naturalization of others, thus adding greatly to the nomenclature of the county. Among others, we may observe that the Nightingale is fast drawing on to this remote corner; and I am assured that it has been constantly heard for several years in some woodlands not far distant from Market-Rasen. The sea-coast and that of the River Humber is, and must always remain a favourite locality for the ornithologist; for, as I have already stated,

* "Britain, or a chonographical description of the most flourishing kingdom of England, written in Latin." By WM. CAMDEN, translated by PHILEMON HOLLAND, M. D. London, 1637. Page 543.

it is, for the most part, a muddy flat; the tide even receding from one to two miles. Here then innumerable birds resort to feed—Stints, Curlews, Ringed Dotterels, Redshanks, Gulls and Ducks of all kinds; and just above high-water mark I have found the nests of the Oyster-catcher and Tern.

That Lincolnshire is one of the most favourite counties for ornithological pursuit, cannot, I think, be doubted. I send a list of those species which have been observed in one single locality, near Swinhope, namely, Croxby Lake. This piece of water contains about thirty acres, and is surrounded on three sides by a belt of plantation, varying from fifty to two-hundred yards in breadth: a portion of the fourth is occupied by a gorse cover, and the rest by a swamp of rushes, willows, etc.; a very limited space, not exceeding in all ninety acres.

- | | |
|-----------------------------|------------------------|
| 1. Avocet | 32. Goose, Wild |
| 2. Bunting, Yellow | 33. Greenfinch |
| 3. Black-headed | 34. Gull, Black-headed |
| 4. Common | 35. Common |
| 5. Blackbird | 36. Hawfinch |
| 6. Blackcap | 37. Hen Harrier |
| 7. Bramble Finch | 38. Hobby |
| 8. Chaffinch | 39. Heron, Common |
| 9. Chiffchaff | 40. Jackdaw |
| 10. Crow, Carrion | 41. Jay |
| 11. Hooded | 42. Kingfisher |
| 12. Crossbill, Common | 43. Kestrel |
| 13. Creeper, Tree | 44. Lark, Sky |
| 14. Cuckoo | 45. Linnet, Common |
| 15. Coot | 46. Moorhen |
| 16. Chat, Stone | 47. Martin, House |
| 17. Whin | 48. Sand |
| 18. Duck, Common Wild | 49. Magpie |
| 19. Pintail | 50. Nightjar |
| 20. Shoveler | 51. Owl, Long-eared |
| 21. Scaup | 52. ... Tawny |
| 22. Red-backed Pochard | 53. Pipit, Tree |
| 23. Tufted | 54. Meadow |
| 24. Golden-eye | 55. Peregrine Falcon |
| 25. Diver, Great Northern | 56. Redpole |
| 26. Dove, Ring | 57. Redbreast |
| 27. Fieldfare | 58. Redwing |
| 28. Grebe, Little | 59. Rail, Land |
| 29. Dusky | 60. ... Water |
| 30. Crested | 61. Rook |
| 31. Goldfinch | 62. Partridge |

63. Pheasant	82. Tit, Long-tailed
64. Peewit	83. ... Marsh
65. Swift	84. ... Cole
66. Swallow	85. ... Greater
67. Sandpiper, Green	86. Warbler, Hedge
68. Common	87. Garden
69. Snipe	88. Reed
70. Jack	89. Willow
71. Swan, Wild	90. Wigeon
72. Sparrow, House	91. Woodcock
73. Tree	92. Whitethroat
74. Starling	93. Wren, Golden-crested
75. Spotted Flycatcher	94. Common
76. Sparrow-Hawk	95. Wagtail, Gray
77. Teal	96. Pied
78. Tern, Common	97. Yellow
79. Thrush, Song	98. Woodpecker, Green
80. Missel	99. Wagel
81. Tit, Blue	100. Wheatear.

I have now enumerated no less than one hundred species from this small space; how many more might have been found there, by a careful observer in days of yore, before it was enclosed and planted, having a decoy at the rushy end; "your deponent sayeth not." The Golden Plover may still be seen in large flocks in the neighbourhood; and, no doubt, in by-gone days of frost and snow, most of the species of Gulls and Geese, Bewick's Swan, and a variety of Ducks not mentioned, may have found a quiet resting-place on this little lake. But they have now, alas! one by one, been fast retiring to those distant haunts, where, far from the improving, though unsparing hand of man, they can still rear their young without interruption.

Swinhope Rectory, November 27th., 1851.

ORNITHOLOGICAL NOTES.

BY R. A. JULIAN, ESQ., JUN.

Occurrence of the Osprey, (Pandion haliaetus,) in Norfolk.—In May, 1851, a very fine adult bird of this species was obtained near Norwich, and lately presented to me by W. Cater, Esq., of Queen's College, Cambridge. It weighed barely four pounds.

Occurrence of the Osprey, (Pandion haliaetus,) in Devon.—The following is an extract from a letter, dated 29th. of October, 1851, by the Rev. C. Bulteel, Erme-Bridge, Devon:—"An Osprey has visited the River Erme. About a fortnight since he was unfortunately hovering over the river for a week

between Saltergrass and Pamphleet pleasure-house, without my being acquainted with it; and on inquiry I was informed, though too late, that even his roosting-place on the cliffs had been ascertained. I live in hope of a November storm bringing him into the estuary again."

Occurrence of the Fork-tailed Kite, (Milvus vulgaris.)—A fine adult female bird of this now rare species was trapped near Trowlsworthy rabbit-warren, on Shaugh Moor, near Plymouth, September 17th., 1851. This was no doubt one of the pair recorded as having been seen there on June 18th., at page 209, vol. i. of "The Naturalist." It measured in length twenty-six inches. The irides were silvery yellow; cere and legs, crome yellow; claws, black above, and white beneath.

Occurrence of the Snow Bunting, (Plectrophanes nivalis,) in Devonshire.—I am informed by J. Gatecombe, Esq., of Plymouth, that a bird of this species was obtained by Mr. Row, of Devonport, October 11th., 1851, on Roborough Down.

Occurrence of the Snow Bunting, (Plectrophanes nivalis,) in Cambridgeshire.—Four of these birds made their appearance on Midsummer Common, adjoining Cambridge, on November 1st., 1851. One of them, a bird of the year, was shot by Mr. Baker, taxidermist, Cambridge, who informs me it had a centipede in its beak.

Late nesting of Quail, (Coturnix vulgaris.)—I am informed by a friend of mine, — Porter, Esq., of Queen's College, Cambridge, that he saw a Quail's nest near Ely, containing many eggs, on the 26th. of September, 1851; when he found it the old female was on the nest.

Late nesting of Ring-Dove, (Columba palumbus.)—I took two nearly-fledged young ones from a nest in a low fir tree, at Minchenay, near Holbeton, Devon, on September 5th., 1851.

A White House Martin, (Hirundo urbica,) and a White Sand Martin, (Hirundo riparia.)—On October 10th., 1851, I saw preserved in an hotel kept by Mr. Monk, at the station, Wokingham, Berks., a beautiful White House Martin. Mr. Bolitho, taxidermist, Plymouth, has a pure White Sand Martin, shot by him on the River Tamar, a few years ago.

Late occurrence of the Swift, (Cypselus apus.)—I saw a pair of these birds flying over Laira, near Plymouth, August 28th., and a single one on August 29th., 1851.

Late occurrences of Cuckoo, (Cuculus canorus.)—A young Cuckoo was shot on September 12th., at Mount Edgcombe, Devon. Out of its gizzard I took about twenty half-digested hairy caterpillars. Whilst staying in Berkshire the latter part of last September, the Rev. Arthur Roberts presented me with a young Cuckoo, shot near Wokingham, on the 20th. of that month.

Emmanuel College, Cambridge, November 7th., 1851.

REMARKS ON THE JER-FALCON, (*FALCO GYRFALCO*.)

BY R. B. NASMYTH, ESQ.

HAVING at present in my possession a cast (couple) of Jer-Falcons,* (*Falco Gyrfalco*,) in course of training for the purpose of Hawking, I feel desirous from the perfection of the specimens, as well as the rarity of the bird, to give a short description, which may perhaps prove interesting to some of your readers. I may add that the descriptions which have come under my notice seem to have been given from stuffed specimens. The specimens are both females, and this year birds; their respective weights are three pounds seven ounces and a half, and three pounds eight ounces; the length, from tip of beak to the end of the tail, twenty-seven inches; across the back, seven inches; length of pinion, nineteen inches. The general colour of the bird is of a dull brown, most characteristic on the back, interspersed with streaks of dirty white, which tip the edge of each feather of the back. The breast has blotches of black occupying the centre of each feather in a pyriform shape. The wings are long and pointed, the second flight feather the longest, the first and third of equal length; the outer web of each feather is of a dark brown, the inner of a lighter brown, with transverse bars of dirty white. The tail has the dull brown colour of the back, with transverse bars of white; the centre feather is the longest, the other feathers shortening towards each side. The thighs and under coverts of wing and tail are of a more perfect white than that on the breast, with blotches of blackish brown. The head presents, at a little distance, a white appearance; the auriculars have a curious edging of white. The bill is of a pale bluish horn-colour, approaching to black towards the tip; the tooth on the upper mandible and the notch in the lower, both very distinct; the cere, bluish white, which is also the colour of the legs; the claws are black, and grooved on the inner or palmar aspect, the hind one being the most powerful. They are as yet remarkably heavy on the wing, but that is disappearing daily as they take longer and bolder flights. Their cry is more of a croak than anything else, or something between the scream of the Peregrine and the croak of the Eagle.

Since writing the above, a friend informs me that a couple of these birds were shot on the estate of the Earl of Lauderdale, some years ago, evidently young birds. They used to make their appearance when the Harriers were out.

78, *George-Street, Edinburgh, November, 1851.*

* All information as to their former habitat, which I have as yet been able to obtain, is not to be relied on, but the party from whom I purchased them, believes them to have come from Iceland.

PREDATORY HABITS OF THE ROOK.

BY J. W. LUKIS, ESQ.

IN confirmation of your correspondent's statement on the "Predacious habits of the Rook," (*Corvus frugilegus*,) I send you the following facts which have come under my notice:—Last season, whilst walking with a friend over his grounds in this neighbourhood, we observed some Rooks very busily feeding, and fighting for something, in a field at a distance from us, which, on going up, we found to be a Partridge's nest, which had contained eight or ten eggs. They were all sucked, and the shells strewed about.

Some years before, the same friend had a Partridge's nest in a field of "cinquefoil," which, when it was being cut, the mowers took care not to disturb, by leaving a space uncut round the nest. My friend watched it almost daily until the third week of incubation, when one morning, as had been his custom, he rode past the nest and saw the old bird sitting all right. On his return through the field about two hours after, he saw some Rooks feeding near where the nest was, and fearing lest his little protégé might be disturbed by them, hastened to the spot, but alas! too late; for the Rooks had sucked all the eggs, and scattered the shells about. His poor little protégé was flying round and round, showing evident signs of distress and alarm, and uttering a pitiful cry.

Great Bedwyn, Wilts., October 8th., 1851.

FOREIGN BODIES IN EGGS.

BY J. W. LUKIS, ESQ.



SOME years ago, my father had a Hen's egg brought to him, with a human hair adhering to two sides of it. He did not at first imagine that the hairs were connected through the interior, but on breaking the shell, he was doubly surprised at finding that such was the fact; it passed through the albumen, and either *over* the disk of the yolk, or *by the side* of it. The singu-

larity of this circumstance urged him to preserve the shell for future examination, and making the matter known to the scientific world; but it was delayed, and finally the shell was lost. Amongst my notes, I find the fact of my having, some years ago, whilst eating a Hen's egg at breakfast, found a *barleycorn* in the albumen.

Great Bedwyn, Wilts., October 8th., 1851.

NOTES ON THE LEPIDOPTERA OF THE WEST OF SCOTLAND AND FIFESHIRE.

BY JOHN GRAY, ESQ.

(*Concluded from Vol. I, page 136.*)

THE concluding groups of the Lepidoptera are composed of species much smaller in size, and consequently more difficult in their investigation, than those other families of this order, which formed the subject of our former remarks, an order of insects which still continues to offer sufficient scope for the researches of the philosophical naturalist, whether with regard to the natural bearings or affinities of the different families, or the generic grouping of the species.

Looking upon these interesting little creatures, however, only as a section of a very lovely tribe of insects, we cannot help being struck by the minutely beautiful markings, and the bright metallic lustre of the spots or streaks that adorn the wings, as well as the mechanism displayed in their various stages; the very minuteness of the field but tending to enhance our admiration of their delicate structure, by showing that in the smaller tribes of the insect world, the same admirably elaborated details exist in as perfect a degree, as in any of those kinds whose size renders them more conspicuous to the casual observer.

These little moths are particularly abundant during the summer months, but no season of the year is entirely without the occurrence of some species; even during the bleak months of winter, various kinds make their appearance when few of the insect world meet the prying eyes of the naturalist. Whilst many are found sporting in their various habitats in the rays of the summer sun, not a few lodge themselves during the day in the foliage of trees or hedges, seldom appearing on the wing till the approach of evening, when, in common with the majority of this order of insects, they leave their hiding-places, and flit about, enjoying their wonted period of nocturnal activity.

In a calm summer afternoon, nothing can convey a more pleasing feeling of serenity to the mind than the motions of these tiny creatures, starting out with noiseless wing from the foliage of some "copice green," and hovering about till lost in the darkening twilight.

The study of this section of the Lepidoptera, in as far as regards careful discrimination of species, is avowedly difficult; becoming more so as we descend to the smaller species; for, however distinct many kinds really are in their essential characters, it cannot be doubted that others are much given to variety, and that they form, in this respect, no exception to many variable groups of larger moths, the different gradation in whose marking is more easily traced. That such variations do occur is abundantly evident from the many synonyms attached to various species, (for example, those of the genus *Peronea*;) and, though we consider a diligent investigation of these little moths absolutely necessary for a proper definition of the species, still we cannot help deprecating that hair-splitting and most unsatisfactory way of describing specific characters,

which, in many recent instances, is evinced by British entomologists; characters which we strongly suspect, from their practical inutility, to depend often on individual variety, or what is not improbable, on imaginary differences. It were well if such do not form a range of mere names destined not to be forgotten, or swept away by the result of more enlarged investigation. In another department of British entomology, that of the Coleoptera, this love of making species has been strikingly evinced—the sure result of that absurd partiality shewn by native collectors for British insects alone, which has called forth upon them once and again the well-merited contempt of continental entomologists, whose enlarged views, and more ample opportunities, so well qualify them to take the lead, as they have hitherto done, in this the most difficult, the most philosophic, and the most extensive portion of the animal kingdom.

In enumerating the following species as indigenous to this part of Scotland, we feel how little has been accomplished towards an accurate investigation of these local productions; and though our present notes merely form but a step towards the desired end, it is with the hope that others, whose opportunities for such pursuits are more ample than our own, may be induced to devote more attention to this interesting field, and further the ends of science, not by collecting a host of objects of natural history, which they know not how to use; but by a patient discrimination of authenticated species, may thus assist others in their labours in this department of Zoology; and, at the same time aid towards more accurate views of nature's productions—the true, we might almost say the only, use of forming a collection.

Though we have subjected our local specimens of these little moths to a careful scrutiny, not a few we have been unable to determine with any degree of certainty, and in some cases we are fearful of having fallen into error; still we hope that we have been sufficiently careful to avoid any important mistake, by our rejection of many doubtfully named species which might otherwise have served to swell our district notes.

The most conspicuous insect amongst the *Tortrices*, which we have met with in this district, is the truly elegant *Hylophila prasinana*. It does not appear in plenty in any locality, but is very generally distributed in many places along both sides of the Frith of Clyde, as well as in different parts of Fife.

Tortrix viburnana occurs in the vicinity of moist places near Glasgow, in July, sometimes in company with *T. palleana*, though neither of these appear to be common.

Tortrix viridana is a constant inhabitant of the oaks, occurring in truly beautiful profusion.

Tortrix Galiana is frequently noticed amongst hedge-rows, etc., in many places near Lanark.

Lozotænia laevigana is abundant in gardens, etc., in July, in company with *L. heparana* and its variety *ribeana*, *rosana*, and *xylostæana*; which latter appears rather later in the season, and is much less abundant.

L. Holmiana appears to be local in its distribution in this district: we have only met with it in a single locality about a mile from Glasgow.

Philedone Gerningiana is a scarce species, generally found in the vicinity of firs, in various places on the Frith of Clyde.

Antithesia betuleta is a very common species everywhere during the summer.

Spilonota cynosbatella, with its congeners *sticticana*, *Stræmiana*, and *trima-culana* are far from rare, and generally distributed.

Pseudotomia aurana is rather local, but not a scarce insect, generally frequenting marshy places. *P. Petiverella*, and *P. atromargana* are not unfrequent in the neighbourhood of Glasgow and elsewhere. *P. plumbagana* is much more local: we are only aware of its occurrence at Carmichael.

Steganoptycha retusana, *Anchylopera Lundiana*, and *A. fractifasciana* are generally distributed throughout this district.

Philalcea bilunana and *P. fimbriana* both occur near Glasgow, but not commonly. *P. Mitterbacheriana*, *subocellana*, and *nigromaculana* are very generally distributed; the latter, especially, is a common insect in Lanarkshire.

Carpocapsa cana is frequently met with near Glasgow and Lanark; *C. ulicetana* is abundant in many varieties everywhere, especially where furze abounds; *C. perlepidana* occurs near Glasgow, but appears to be scarce and local.

Bactra pauperana is a variable species occurring not unfrequently near Glasgow and elsewhere. *B. plagana* is much scarcer, but is met with in similar localities.

Ablabia 4-punctana occurs sparingly in various places at the beginning of August.

Cnephasia Logiana, *asinana*, *obsoletana*, *interjectana*, and *masculana* all frequent various localities in Lanarkshire, and along the Frith of Clyde, during the summer months. They are all more or less local in their habits, and not abundant.

Sericoris 4-maculana is common amongst firs everywhere; *S. urticana* is also abundant; *S. micana* occurs rarely in Carmichael, in July; *S. subsequana* we have only taken on Tinto, a few miles from Lanark, and is seemingly very local. In this locality it abounds in great profusion towards the end of July, amongst the grassy heath, always increasing in numbers towards the summit.

Pœtilochroma Solandriana occurs not unfrequently near Glasgow; *P. trap-ezana* and *communana* are, however, more abundant.

Lophoderus ministrans occurs in woods near Glasgow and Lanark about midsummer, and is not at all rare. In the latter locality some beautiful varieties of a dark-colour occur.

Many varieties of the genus *Peronea* abound in this district; which, with many, are considered as species. We may enumerate as abundant denizens of the hedge-rows, *P. asperana*, *Schalleriana*, and *tristana*, without attempting further to wade through the prolix synonymy of this variable genus.

Acleris aspersana we have only noticed on the marshy spots of Carmichael

Hill, near Lanark, in the month of July. *A. tripunctulana* occurs in woody places a few miles from the same locality, where we have taken it secreted amongst the roots of shrubs, in the month of January.

Clepsis rusticana is common in marshy places near Glasgow, early in June.

Teras emargana and *effractana* are generally distributed in woody places, appearing at the end of summer.

Diptyopteryx ciliana and *contaminana* are both common in the month of August.

Argyrotoza Conwayana occurs near Glasgow, and along the Frith of Clyde not uncommonly. *A. Daldorfiana* is also common in many places, generally frequenting hedges. *A. Bergmanniana* is very abundant.

Orthotenia Bentleyana frequents heathy places, especially in the vicinity of firs; *O. comitana* is common amongst firs; *O. antiquana* is generally distributed.

Eupæcilia angustana is a common insect in many places.

Lozopera straminea is local in its distribution, but occurs in abundance near Glasgow; also in the Isle of Arran. *L. Smeathmanniana* is much scarcer.

Xanthosetia Zegana is occasionally met with, but is far from common in any locality. *X. diversana*, though perhaps somewhat local, is very abundant where it occurs; a few miles from Lanark it appears in plenty, hovering amongst broom during the daytime.

Depressaria costosa, *irrearella*, and *badiella* are found in plenty throughout Lanarkshire and elsewhere.

Anacamptis terrella, *Betulea*, and *rhombella* are all plentifully distributed throughout this district.

Acompsis cinerella occurs near Glasgow, in July.

Macrochila bicostella is abundant on heaths near Lanark and elsewhere, at the beginning of July.

Ecophora flavomaculella and *sulphurella* both occur sparingly near Glasgow; the latter, however, is much commoner.

Diurnea fagella is abundant in many places during February or March, generally found resting on the bark of trees.

Adela viridella occurs but rarely in this district; we have only noticed it in the vicinity of Glasgow. *A. Swammerdamella* occurs in woods near Glasgow, flying in great profusion during the afternoon.

Yponomeuta padella frequents gardens, but we have never seen it in any abundance; indeed we might almost term it a scarce species in Lanarkshire.

Telea Curtisella is by no means a scarce insect, frequenting hedges, etc. The chrysalis of this species is beautifully striped with pale yellow along the wing cases and abdominal segments, and is enclosed in a cocoon of the most delicate white network. *T. cæsiella* is also common in most parts of this district. *T. lutarella* is met with much more sparingly.

Ederesa pruniella abounds everywhere during the summer; *E. albistria* is however much scarcer.

Elachista apicipunctella occurs near Glasgow and elsewhere.

Argyrosetia semifusciella, *Goedartella*, and *brockella* occur in many places near Glasgow and Lanark, the latter in several stages of markings till it assumes a uniform coppery lustre. *Argyromiges mespilella* is also not unfrequent.

Heribeia Haworthana occurs in several localities early in the summer; *H. Forsterella* appears somewhat later near Glasgow, but is not common.

Microsetia exiguella, with several other congeners, are found commonly in many places.

Lithocolletis Ulnifoliella and *Quercifoliella* abound in woody places everywhere.

Callisto Fysesella is common in the month of June, in marshy places near Glasgow. *Astyages coracipennella* is also common.

Chrysocoris scissella seems to be a local insect; it appears in July, near Glasgow in great abundance, flying about furze.

Porrectaria otidipennella and *gallipennella* are generally distributed.

Aphelosetia auritella is a beautiful little frequenter of gardens near Glasgow, but is somewhat scarce; *A. triatomea* is much commoner.

Eudorea dubitalis, *lineola* and *subfusca* are not uncommon in many places; *Phycita fusca* and *nebulella* are also generally distributed.

Crambus lythargyrellus, *pascuellus*, *pratellus*, *aquilellus*, and *culmellus*, may be enumerated as common on pastures, etc., during the summer; *C. pinetellus* is also found in heathy districts, but very sparingly. *C. radiellus*, which has been generally represented as occurring exclusively on mountainous districts, frequents quite different kinds of localities in this part of the country, and is, in some seasons, particularly common on a flat swampy heath in Renfrewshire. It also occurs in a similar locality at Kirkintilloch.

Harpigteryx dentella is common in gardens, etc. everywhere.

Chaetochilus fissellus occurs sparingly at Westmains, near Lanark; we have not noticed it elsewhere.

Cerostoma xylostella frequents hilly heaths near Lanark.

Of the genus *Tinea*, many species frequent houses, etc., which are too well known to require any notice. *T. parasitella* is rather uncommon, though frequenting many places. The most interesting species of this genus which has come under our notice in this district is *T. ustella*, chiefly on account of its peculiar habitat; it has established itself, in fact, within the precincts of an old coal and limestone mine in the vicinity of Campsie. For a notice of this interesting fact we are indebted to our friend Mr. R. Gray, who informs us that it appeared in great abundance when he visited the spot two years ago.

Lepidocera Birdella occurs sparingly near Glasgow, about the middle of August, flying near hedge-rows.

Incurvaria masculella is a common insect in hedges and woods, early in the summer.

Lampronia corticella appears in June, in woods, etc., near Glasgow; *L. prelatella* we have only seen near Lanark; *L. luzella* occurs in July near Glasgow, but is apparently local; *L. purpurella* is generally distributed.

Eriocephala calthella, *subpurpurella*, and *semipurpurella* occur in many different localities, and are far from rare.

Gracillaria rufipennella frequents firs early in the season in many places; *G. Thunbergella* is very abundant near Glasgow in July; *G. syringella* and *meleagripennella* are also common.

Pterophorus pentadactylus is rather a scarce insect, occurring near Inverary; *P. tetradactylus*, *fuscodactylus*, and one or two others occur in various parts of Lanarkshire. *Alucita hexadactyla* is sparingly distributed.

Glasgow, November 17th., 1851.

NOTES ON CHEIMATOBIA BOREARIA AND TROCHILIUM SPHEGIFORMIS.

BY R. S. EDLESTON, ESQ.

SOME six or seven years ago, I captured the male and female of *Cheimatobia borearia*, thinking at the time they were merely varieties of *Brumaria*, and so placed in my cabinet, no doubt the case with many others. Last season I was too late for fine specimens, the time of appearance being kept a secret. This year, on the 22nd. of October, I captured a single pair in Botany Bay wood; on the 25th., thirty-eight males and eight females; abundant on the 30th. They frequent birch trees. Males are very difficult to find in the day-time; the moment it becomes dusk and you light up, the males are to be seen emerging in all directions out of the grass and heath, perching on the stems; others at rest on the birch twigs—few in proportion on the tree boles; females principally on the twigs. I have no doubt this species may be found wherever birch trees are abundant. I can only account for their being overlooked so many years from their strange appearance at dusk. Any party desirous of specimens may have them on application.

My brother captured a splendid pair in copulo of *Trochilium sphegiformis* on Chat Moss, July 4th.; also *Phycita obtusa*, *Palumbella*, *Platypteryx lacertula*, *Lithosia mesomella*, and *Euthemonia Russula*. On the 3rd. of July, I met with *Rhodaria sanguinalis* in great abundance at New Brighton; also *Leucania littoralis* and *Lupernia albicolon*. On the 21st. of July, I received from Macclesfield several *Plusia bractea*, from the eggs deposited by a female—larvæ fed on lettuce; I have a few in the chrysalis state. From the 1st. to the 6th. of September, *Epunda lichenea* and *Chersotis Haworthi* abundant at Lytham. At the end of August, at Manchester, several specimens of *Hydræcia petasitis* were captured, and several bred; chrysalis found at the roots of Burdock; larva apparently feed two years.

I possess a charming male *Lasiocampa* bred this season, apparently a Hybrid between *Rubi* and *Quercus*; a *Lycæna phlæas*, the superior wings of which are nearly black; and a *Cerura bifida*, with the broad bar on the wing terminating

in a point. The collectors down here, during the winter, cut out of the poplar trees a great number of this species in the chrysalis state.

Manchester, November 5th., 1851.

CONTRIBUTIONS TO THE FAUNA OF FALMOUTH.

BY W. P. COCKS, ESQ.

(Continued from Vol. I, page 140.)

CLASS III.—REPTILIA.

Lacerta Stirpium, *Daudin*.—Embankment near furze brake, east of Swanpool beach: very rare.

Lacerta agilis, *Berk*.—Common in the neighbourhood.

Lacerta anguiformis, *Shep*.—Furze brake, Pennance point, near Swanpool beach: very rare.

Lacerta Ædura, *Shep*.—Lane, (Blockhouse fields,) extending from Waterlane to the entrance of Capt. Bull's walk.

Anguis fragilis, *Linn*.—Common.

Natrix torquata, *Ray*.—Near dog-kennel, Panseoth lane, etc.: not common.

Viper communis, *Leach*.—Pennance, College wood, etc.: not uncommon.

————— *Var. (Coluber cherssea)*.—Furze brake, Pennance, near College wood: rare.

Rana temporaria, *Linn*.—Common.

Bufo vulgaris, *Flem*.—Common.

Bufo calamita, *Laur*.—In a pond near Poor-house Bar-lane: rare.

Triton palustris, *Flem*.—In ditches and ponds: not uncommon.

Triton punctatus, *Buonap*.—In ditches and ponds: common.

Triton palmipes, *Lat*.—In a pond near to Mr. Jago's farm-house: rare.

Triton Bibronii, *Bell*.—In ditch, Mr. Jago's field leading from Trevethan lane, pond near stone quarry, Budock bottoms.

CLASS IV.—PISCES.

Labrax lupus, *Cuv*.—Common.

Serranus cabrilla, *Cuv. et Val*.—Not uncommon.

Serranus Couchii, *Yar*.—Fish-market, August 6th., 1848. The first taken for six years. Added to the British Fauna by Mr. Couch.

Trachinus draco, *Linn*.—Trawl boats: not common. Market: rare.

Trachinus vipera, *Cuv*.—Trawl boats, and fish-market: not uncommon.

Mullus surmuletus, *Linn*.—Not uncommon in the summer.

Mullus barbatus, *Linn*.—A few specimens have been captured during the last five years.

Trigla cuculus, *Linn.*—Common.

Trigla lineata, *Linn.*—Not uncommon.

Trigla hirundo, *Linn.*—Common.

Trigla lyra, *Linn.*—Common.

Trigla gurnardus, *Linn.*—Common.

Trigla Blochii, *Yar.*—Trawl refuse, August, 1845; length, three inches, depth, four-eighths and one-sixteenth: very rare.

Cottus gobio, *Linn.*—Pond and brook near College Wood, Budock bottom, etc.: not uncommon.

Cottus scorpius, *Bloch.*—Harbour, Barpoint, etc.: not uncommon.

Cottus bubalis, *Cuv.*—In pools, under stones, etc.: common.

Cottus quadricornis, *Linn.*—A mutilated specimen from the stomach of the *Morrhua vulgaris*.

Aspidophorus cataphractus, *Jenyns.*—Trawl refuse, and stomach of Fishes: not uncommon. J. Boase, Esq., of Pendennis Castle, found one under seaweed near the magazine.

Gasterosteus trachurus, *Cuv.*—Ponds, College Wood, Panscoth lane, Swanpool, etc.: common.

Gasterosteus leiurus, *Cuv.*—Brook near Mainporth: rare.

Gasterosteus spinachia, *Linn.*—Harbour, Gwyllyn Vase, Swanpool, etc.: common.

Pagrus vulgaris, *Cuv.*—Summer, not uncommon, a great supply of them this year, (1851.)

Pagellus erythrinus, *Cuv.*—Scarce.

Pagellus centrodonatus, *Cuv.*—Common.

Dentex vulgaris, *Cuv.*—This magnificent fish, two feet eight inches and a half in length, five inches in breadth, and between seven and eight inches in depth, was purchased by J. Vigers, Esq., November, 1846, in the Falmouth market.

Cantharus griseus, *Cuv.*—Not uncommon.

Scomber Scomber, *Linn.*—Common.

Scomber colias, *Cuv.*—Rare.

Naucrates ductor, *Cuv.*—January 25th., 1845, one was caught in the quarantine pool; November 3rd., 1847, three were taken by two boys in the Mill-pond Bar; T. Passingham, Esq. captured nine in the same pond, the smallest measured ten inches and a half in length. December 1849, three captured in a hand net, Custom-house quay.

Caranx trachurus, *Cuv.*—Not uncommon.

Centrolophus pompilus, *Cuv. et Val.*—(Black fish,) caught by the teeth in a drift net, St. Maw's, August 27th., 1850; length, twenty-three inches and a half.

Zeus faber, *Linn.*—Common.

Capros aper, *Cuv.*—Not uncommon. May, 1846, one; June, two; March, 1847, two; May, two; February, 1849, one.

Cepola rubescens, *Cuv.*—Not uncommon.

Atherina presbyter, *Cuv.*—Common.

Mugil capito, *Cuv.*—Common.

Mugil chelo, *Cuv.*—Added to British Fauna by Mr. Couch.

Blennius Montagu, *Flem.*—Under stones, sea-weeds, and in small pools; Gwyllyn Vase, Swanpool, etc.: common.

Blennius ocellarius, *Bloch.*—Length, five inches; depth of head, seven-eighths of an inch; first dorsal fin, five-eighths of an inch; caudal three-fourths of an inch. Trawl refuse, October 25th., 1848: rare.

(To be continued.)

Miscellaneous Notices.

White Hare.—Mr. Harvey, on September 23rd. shot on the Ratherton estate, near Holsworthy, a perfectly milk-white Hare, which is now in my collection.—*W. Tombs, Jun., Exeter, November 4th., 1851.*

Malformation of the Teeth of the Rabbit, (*Lepus cuniculus*).—A gentleman of this town was shooting at Wooton, Beds, on the 6th. of November, when he shot a full-grown Rabbit, which had the four front teeth, or incisors, of a very extraordinary length, those in the under jaw being curved upwards; one of them was broken off, the other one was an inch and five-eighths long; the two upper teeth were curved inwards along the roof of the mouth, and were seven-eighths of an inch long. How the poor animal existed with such teeth I cannot imagine, the only way it could eat the herbage, was by biting it sideways; it was a mere existence certainly, for the poor thing was little else but skin and bone. One of the Duke of Bedford's keepers brought me the head of a Rabbit which he found dead in one of the rides in the evergreens in Woburn Park, about three years ago, which had the two bottom incisors very similar to the above, but both perfect, and of such a length as prevented its getting at any food; the animal had therefore died of starvation, in the midst of plenty, as the keeper told me its body was nothing but a bag of bones.—*George B. Clarke, Woburn, Beds., November 11th., 1851.*

The Peregrine Falcon, (*Falco peregrinus*).—A rare occurrence took place here on the 7th. instant. I was standing on the north bridge that crosses the River Soar, when I heard a strange noise which attracted my attention. Looking round, I perceived, about eighty yards off, two large Hawks fighting, at each attack soaring one above the other alternately. Their evolutions at this time were truly beautiful. I watched them with the greatest interest till they gradually came within gun-shot. Mr. Birkley, Jun., who had been on the look-out, seized the opportunity; taking steady aim, he let fly, and brought down a fine female Peregrine Falcon. Mr. B. handed it to me to preserve for him. Length, nineteen inches and a quarter; from tip to tip of wings, forty-four inches; weight, two pounds.—*W. Bond, Frog Island, Leicester, Nov. 27th, 1851*

Lark's eggs found in the stomach of a Hawk, (Circus Montagui.)—On looking over "The Naturalist" of the present month, I find at page 230, a notice of eggs found in the stomach of a Hawk. A similar circumstance having come under my own notice, perhaps it may be interesting to some of your readers to record it. In May, 1838, I had an Ash-coloured Harrier, (*Circus Montagui*,) brought to me to be stuffed. On opening its mouth for the purpose of cleaning it, preparatory to skinning, I discovered some yolk of eggs in the throat; by carefully examining it, I found the crop to contain a number of eggs; some quite smashed, others slightly fractured, and one entire—all Sky-lark's eggs. This bird was shot near Carlisle. I set it up for T. C. Heysham, Esq., of that city, who also got the egg that was not broken.—*James Cooper, Museum, Warrington, December 4th., 1851.*

Buff-coloured Wood-lark, (Alauda arborea.)—A pure buff-coloured Wood-lark was shot near Crediton, in August last.—*W. Tombs, Jun., Exeter, November 4th., 1851.*

Rose-coloured Pastor, (Pastor roseus.)—A fine male bird of this species was shot near Chudleigh, on July 10th.—*Idem.*

Glossy Ibis, (Ibis falcinellus.)—A young specimen of this rare British visitor was captured at Blatchboro, near Holsworthy, on September 7th.—*Idem.*

Spotted and Common Redshanks and Greenshanks.—Three Spotted Redshanks, (*Totanus fuscus*,) and several Common Redshanks, (*T. calidris*,) and Greenshanks, (*T. glottis*,) have recently been killed in the estuary of the Exe.—*Idem.*

Little Gull, (Larus minutus.)—On January 31st. G. C. Luke, Esq. kindly presented me with a Little Gull, which he had shot whilst feeding with two others of the same species, in a turnip field near this city: it is now in my collection.—*Idem.*

Late occurrence of the Cuckoo.—On the 23rd. of October, of this year, as two friends of mine were botanizing in a small wood, called Botley, which crowns one of the hills in this neighbourhood, they repeatedly heard the well-known notes of "Cuckoo, cuck, cuck, koo," uttered several times. When they were first heard, my friends were some distance from each other, and the one who fancied the other was hoaxing her, repeated these notes until they met, and, to their mutual surprise, there was this sweet harbinger of spring, *C. canorus*, outvying my two friends with its sweet voice.—*J. W. Lukis, Great Bedwyn, November 27th., 1851.*

Late appearance of Hirundo rustica.—On the 12th. of November, as my friend, the Rev. S. C. E. N. Rolfe, of Heacham Hall, Norfolk, was taking his accustomed morning walk, between the hours of seven and eight o'clock, he saw a Swallow flying about the front of his house as busily as in the middle of summer. He watched it for the space of half-an-hour; it would now and then alight on the coping of the house, and then resume its active flight. It was not seen after breakfast was over.—*Idem.*

The Jackdaw, (*Corvus monedula*.)—I may here corroborate the fact of the Jackdaw building in holes of trees; for when at Heacham Hall, Norfolk, I used frequently to disturb *two pair* of Jackdaws from an old oak tree, in which was also a brood of Starlings, (*Sturnus vulgaris*.) The old church tower was distant only a few hundred yards!—*Idem*.

Swallows, (*Hirundo rustica*.)—A very large number of these interesting birds assembled yesterday and to-day on and near my house in this town, previous to their migration, and started in two parties. This I have observed as occurring about the same time and at the same place for several years past.—*John Garland, Dorchester, September 19th., 1851.*

Curious freak of the Pied Wagtail.—On the 20th. of last June, a relation of mine found a Redstart's nest, (*Phoenicurus ruticilla*.) containing four eggs, and brought it to me. To my surprise, on examination, I found one to be the egg of the Wagtail, (*Motacilla Yarrelli*.)—*William Bond, Frog Island, Leicester, October 20th., 1851.*

Black Scoter, (*Oidemia nigra*.)—Three specimens of this bird were obtained here on the 23rd. of October last.—*C. Stubbs, Henley-upon-Thames, December 1st., 1851.*

A pure white specimen of the Common Blackbird, (*Turdus merula*.) was shot on the 11th. of November last in this neighbourhood.—*Idem*.

A *Land Rail*, (*Crex pratensis*.) was brought me on the 4th. of November. It was a young bird, and very fat; rather late, more particularly considering the cold weather we have had.—*Idem*.

A white specimen of the Common Starling, (*Sturnus vulgaris*.) was seen a great many times, in October last, at Emmer Green, near Caversham. It used to associate with a large flock of the common colour.—*Idem*.

Peacock Butterfly, (*Vanessa Io*.)—A quantity of these flies came forward to-day, August 25th., which changed from caterpillars August 9th., making therefore the time they remain in the chrysalis state, sixteen days.—*R. A. Julian, Emmanuel College, November 7th., 1851.*

Clouded-Yellow Butterfly, (*Colias edusa*.)—I know of about twenty of these flies having been taken in the neighbourhood of Plymouth this season, between August 30th. and September 20th. They were mostly captured on the coast between Mount-Batten and Bovisand. They also frequent barren banks and clover fields at a great distance from the sea.—*Idem*.

The Mistletoe, (*Viscum album*.)—Your correspondent, in No. 7 of this Journal, may be glad to add the Pear tree to his list of trees upon which this parasite grows. When at Fawnhope, in Herefordshire, in 1840, I observed it growing most commonly and abundantly upon the common Pear tree, which grows in the orchards of that part of the country. I hope to add a list of

the trees upon which it grows in this neighbourhood ere long.—*J. W. Lukis, Great Bedwyn, Wilts, October 8th., 1851.*

"A Toad in a Hole."—A few days since, a lady who resides at the Vicarage, South Newington, related a circumstance to me, relative to a disputed point in Natural History, which occurred on the road leading from that village to Banbury; and which, at the time, I thought worth sending for insertion in your interesting and useful publication. I now feel the more disposed to forward it, in consequence of having read in "The Times," of Tuesday last, an article extracted from the "Literary Gazette," with the ludicrous heading I have copied above. The account there narrated, is of a Toad having been discovered by some workmen, in digging a well at Blois, last June, in the middle of a large flint, weighing about fourteen pounds, and lying about a yard beneath the surface of the soil. The stone and the Toad, just as they were, were sent to the Society of Sciences at Blois, where it is said to have become the subject of curious attention; and it is also stated to have been brought before the Academy of Sciences at Paris. Every circumstance mentioned appears to confirm the supposition that the creature must have been enclosed from the very formation of the flint; but M. Magendie suggested that it was just possible that an attempt was being made to hoax the Academy, as it might have been put in by the workmen after the stone was broken. But for the objections to this, and the whole narrative, I will refer your readers to the article itself, and proceed to give you an account of the circumstance I have commenced with, respecting another Toad which was discovered in a similar situation, where, undoubtedly, no trick was attempted or thought of. The lady I have alluded to was walking with some more ladies on the road I have mentioned, when a cart, loaded with stones from a neighbouring stone-pit, passed them. It had no sooner done so, than a large round stone rolled off the load, and on its falling on the hard ground, immediately split in two parts; when, to the wonder of the party, a living Toad came out of a hole in the middle of it. They called to the carter, who stopped his horses, examined the reptile and his lodging, and after having joined with the ladies in expressing astonishment at—"the thing being in the middle of a great stone when there was no place for him to get in at!"—coolly enclosed it again in its once subterranean resting-place, threw the stone and its inmate on the top of his load, and without further reflection drove leisurely on. I regret exceedingly I had not the good fortune to witness this event myself, as I fully believed, from the statement made to me, (the truth of which I can fully rely on,) that the reptile was perfectly enclosed in the stone. This was of the soft reddish brown kind which spreads over a large portion of the north of Oxfordshire, and is described by the Rev. W. D. Conybeare, as ferruginous sandstone of the inferior oolite; and by Sowerby, as sandy or iron-shot oolite. I may add here, that Mr. Conybeare was for a few years clergyman of South Newington, which afforded him an excellent opportunity

of examining the stratification of this neighbourhood, and of so accurately describing it as he has done in the "Outlines of the Geology of England and Wales." The much-agitated question of living Toads being found in blocks of stone, is by no means a new one in this town, as I have been several times told by masons and labourers who reside here, and who have collected fossils for me, that they have discovered them in this situation; but I never had an account I could rely on better than the one I have related.—*Charles Faulkner, Museum, Deddington, August 22nd., 1851.*

A fact for Naturalists.—A singular circumstance, and calculated to shake the popular belief on the subject, occurred during the present week. Mr. Pigeon, a fish dealer, Great Yarmouth, purchased a quantity of Crabs, and in examining them, one of them was found to be marked with certain initials, and also with the date "1845" on the shell. The general-received opinion is that the Crab casts its shell every year. If these marks, therefore, were affixed in the year assigned, this must be considered a satisfactory refutation of the notion. The initials are "Y. O. U. N.," "C, and B. A." The Crab is still in the possession of Mr. Pigeon, who will be happy to shew it to any one curious enough to desire to see it.—*Norfolk News, May 31st., 1851.*

Note on a Sturgeon, (Acipenser sturio.)—August 15th., a Sturgeon six feet long, and weighing sixty pounds, was taken in a ground seine near West Looe, and forwarded to the London market. This fish is of very rare occurrence here.—*C. Jackson.*

Scelopendra electrica.—While walking a few nights since in my garden here, I picked up a specimen of this singular luminous insect. The light it emitted was not confined, as in the Glow-worm, to one spot of the body, but proceeded from different parts, seemingly at the insect's pleasure, sometimes even shining in more than one place at once—a fact noticed by Kirby, in his work on Entomology, who further describes it as being "a common insect in this country, residing under clods of earth, and often visible at night in gardens." One thing I observed in it as being very peculiar; on being placed in my hand, it emitted from its side several drops, as it were, of phosphorescent light, which continued shining for a few seconds. This was no doubt occasioned by a bruise it had received the moment before I picked it up, which allowed the luminous secretion to escape.—*F. M. Burton, Lindum House, Lincoln, October 20th., 1851.*

Some workmen, who were lately digging in a sort of bog in New Jersey, came upon the bones of some enormous animal. After a deal of labour, they succeeded in exhuming a tusk measuring ten feet in length, and weighing one hundred and sixty-five pounds; some teeth weighing over seven pounds each, ten inches long, and twenty-eight in circumference; and a fore leg or shin bone, measuring three feet six inches from the fetlock joint to the knee. From these specimens we presume the remains to be those of some monster of the Mastodon genus.—*Evening Journal, October 9th., 1851.*

Proceedings of Societies.

Natural History Society of Glasgow.—On 2nd. of July, 1851, a number of gentlemen formed themselves into a society, under the name of "The Natural History Society of Glasgow," the objects of which are to encourage the pursuit of Natural History in all its branches, and to foster a love of this science, by meetings for the exhibition of specimens, both native and foreign, the reading of communications, and excursions for mutual improvement.

JOHN SCOULER, M. D., L. L. D., F. L. S., Lecturer to the Natural History Society of Dublin, is Honorary President, WILLIAM GOURLIE, Esq., President, and W. B. LORRAIN, M. D., Vice-President, for the present season.

At a special meeting held on 9th. July, DR. SCOULER read a paper "On the Symmetry of Plants and Animals." He observed that the great distinction between plants and animals consists, as Aristotle has long since observed, in the presence of sensation in the one class and its absence in the other. The functions of the plant were of two kinds only—nutritive and reproductive; while in the animal there was, in addition, a complicated apparatus of sensation and locomotion, connected by the central part of the nervous system. In vegetables the symmetrical arrangement of parts was consequently more simple than in animals, having no relation to locomotion. In the vegetable the parts were disposed in a spiral line, or radiated from a central axis, and hence could not be considered as bilateral. A flower, for example, had neither a right and a left side, nor anterior and posterior parts. On the contrary, in the animal kingdom there was always an anterior part, indicated by the position of the mouth, and having near it the chief nervous mass, whether a brain or a ganglion, and also the principal organs of sense. By ascertaining the position of the mouth, we had, therefore, a certain means of recognising the anterior extremity, and by this means, as Agassiz had well shown, we could recognise the posterior extremity and the right and left side; consequently the bilateral symmetry even of the radiated zoophytes, as the Sea-urchin and the Sea-star. Dr. S. continued, that the same kind of investigation when extended was sufficient to prove the existence of this bilateral symmetry throughout the animal kingdom, although it became obscure in proportion as the animal was deprived of active locomotive powers, or enclosed in a shell. Of the greater or less distinctness of the bilateral symmetry in proportion to the proportion of locomotion, we had examples in the *Cirripeds* and the *Lernææ*, in which the young animals were perfectly bilateral, and furnished with ambulatory feet, while in the adult females, permanently fixed to foreign substances, or to the bodies of other animals, almost every vestige of symmetry was lost. Nevertheless, even in zoophytes of very limited locomotive powers, we could still trace the bilateral symmetry. Even in the *Actinia* the foot was divided into two lateral portions, and in the allied genus of *Fungia* we observed this division even in the coral or polypary formed by the animal.

At the first ordinary meeting, held on the 5th. August, MR. JOHN GRAY read a paper, "On the Hydrocanthari of the West of Scotland." This paper is retained in the meantime, at the author's request, for the insertion of additional species.

MR. ROBERT GRAY gave an interesting account of an excursion made by himself and MR. J. P. FRASER in July, to the shores of East Lothian and Berwickshire, including a visit to the Bass Rock; illustrating the geological remarks with a numerous suite of fossils. At Dunbar Mr. G. noted the interesting fact that the Coalfish, or Sethe, (*Merlangus carbonarius*,) is, at certain seasons at least, of very voracious habits. During the Herring-fishery at that town, it had taken the place of *Acanthias vulgaris*, (the Common Dogfish,) a most destructive enemy to industrious fishermen, as it devours the Herrings, besides destroying the nets. (This occurrence is detailed in "The Naturalist," for November, 1851.) On the 21st. the party rambled along shore, and examined a raised beach of some extent, about sixteen or twenty feet above the usual level. This "ancient sea margin" was full of the usual objects to be found on the sea-shore, and contained besides a number of *Helices*, or Snail shells, which had obviously been buried at the same time with the others. The whole mass had become quite black, and strongly matted with roots of grass, etc. Part of the same day was devoted to collecting fossils, in which various parts of the shore abound. These have been alluded to by Mr. W. Ferguson, in his Geological Monograph, recently published in "The Naturalist," and consist chiefly of Eocrinites of two or three species, including one pear-shaped, and the remains of shells and corals. Many specimens were noticed which were finely branched, and one or two little mounds in the bed were entirely composed of fragments of tentacula, or arms, some of which were not thicker than threads.

Near the spot a magnificent sheet of Sandstone was observed, covered with ripple markings, so regular and fresh-looking as almost to deceive the eye into the belief that the observer looked upon a sandy shore, just left bare by the tide. It is about twenty or thirty yards in extent. Vegetable remains lay here in myriads, many of them in exquisite condition, others were in a state of charcoal, and might have been almost used as a dentrifice. "As we passed onwards," says Mr. G., "fragments of a *sigillaria*, of which the shingle on the beach was entirely composed, betrayed the neighbourhood of another most interesting ancient forest; and as we walked off the links and across these loose stones, we trod immediately on their prostrate and petrified remains. Whole trees lay there, with their curiously-marked trunks and branches crossing each other, and in confused heaps, like tangle on the shore; and as we stepped from rock to rock, new forms engaged our attention. Many of them had been washed out of their sites, leaving a corresponding cavity impressed with their external characters; others were laying loose in their cradles, and rocked by the waves at every tide. We dislodged a few of these, and found the under side coated with coaly matter. Some specimens measured ten or twelve feet in length, and were much branched; the main trunk had a proportionate thickness, and the extremities might almost be termed twigs." One or two other deposits were noticed, fossils from which were laid on the table; the most admired were a large and crowded slab, containing portions of *echini*, etc., and pieces of coral, in which were embedded some beautiful *terebratulæ*.

Several interesting ornithological notices were also given. At the Bass Rock, the Little Auk, (*Mergulus alle*), was observed, a bird which is very seldom met with. Great numbers of Kittiwakes, (*Larus tridactylus*), were breeding in the high ledges; one that was shot disgorged an ordinary-sized whiting. The Sandwich Tern, (*Sterna Boysii*), was also found breeding there. Along shore specimens of the Purple Sandpiper, (*Tringa maritima*), were obtained—a rare capture in the summer season, as it is one of those species which retire to northern latitudes to breed. On the 23rd., the excursionists set out for St. Abb's Head, where they had to endure the disappointment of not finding a boat at their service. A delightful ramble, however, was enjoyed along the head of the cliffs, which were profusely clothed with wild flowers. Over these various insects were hovering in abundance—gay Copper Butterflies, and sober-coloured Ringlets, Graylings, etc. *Anthrocera filipendula*, (the Five-spot Burnet Moth,) was particularly common. On wing this curious insect resembles a slow-flying Beetle. Every gleam of sunshine called forth swarms, which instantly dropped on the smallest disturbance being offered. Their flight was not resumed for a time; and so sluggish were they, that our entomologists leisurely pinned them on the flowers, without being required to take them in their hands, an operation they submitted to very quietly. In East Lothian and Berwickshire the insect appears to have a partiality to the sea-shore, being found in many situations along their coasts. On their way to Cantybay, the party saw a large swarm of the Speckled Wood Butterfly—an interesting and pretty species of *Hipparchia*—flying about the hedge-rows. There were some hundreds of them in active motion, occasionally assembling in little clusters, and fighting till they reached the ground. So numerous were these beautiful creatures, that several were knocked down at each blow of a cap, as it swung rapidly from side to side. The Painted Lady, (*Cynthia cardui*), was also found, but not in such plenty.

Mr. Gray concluded his account, of which the foregoing is a very imperfect abstract, with a few interesting observations on the Rock Pigeon, (*Columba livia*), which was noticed in considerable numbers in the rocky coves between Cockburnspath and Fast Castle.

The Querist.

Have any of your entomological subscribers reared *Vanessa Antiopa* from the larva in this country? and if not, at what period of the year were the specimens they possess captured?—An answer will oblige BOMBYX ATLAS, Tottenham.

Water-Lilies, (*Nymphaea alba*).—In a pond at Middleton Tyas, near Richmond, Yorkshire. *Nuphar lutea*, in abundance in the Wiske, at Yafforth, near Northallerton, North-Riding of Yorkshire. Collected in these localities by D. Ferguson, Redcar.

Water-Lilies, (*Nymphaea alba*).—Plentifully in the Foss river, close to York. *Nuphar lutea*, common in the Foss also.—B. R. M.

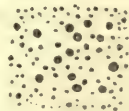
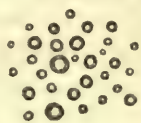
ANATOMY OF THE LEAF.

BY SPENCER COBBOLD, ESQ., M. D.

A LEAF is nothing more or less than a lateral expansion of the outer layer or bark of any stem or bough. An ordinary leaf to the naked eye appears to be merely a flat plate of cellular substance, which, traversed by numerous veins or nerves, radiating from a common vein, or *midrib*, as it is called, forms that beautiful reticulated structure so familiar to us all. Common as the appearance is, we cannot fail to recognise in it evidence of design. We shall not stop to comment upon the obvious necessity for such an arrangement; this would lead us into a department of the subject to which the term *Morphology* is more strictly applicable; moreover, it is a branch of inquiry which has only very recently been broken up.

Let us look more closely at the ultimate elements of which it is composed; this we are enabled to do by aid of the microscope, an instrument which of late years has been brought to great perfection, and at the present time forms one of our most valuable accompaniments in the investigation of natural phenomena. A leaf, then, such as we have already defined, consists, like all other parts of a plant in the fully-developed state, of only two kinds of structure, which present, however, various modifications under different circumstances. These two structures are termed *cells* and *vessels*. The cells are merely little bags or vesicles, the wall or covering of which is a transparent homogeneous membrane, of extreme tenuity, and is chemically closely allied to starch. Their *size* varies considerably; in some plants measuring the twentieth or even the tenth part of an inch in diameter, while in others they are less than the two-thousandth part of the same metre. Their *shape* is equally variable, which is owing to the manner in which they are compressed together, in this way forming either cubical, pentagonal, octagonal, or dodecahedral cellular tissue.

Let us now see what is contained within these vesicles or cells. All of them contain a more or less palpable fluid, which in some is watery or still more dense; in others there exists only a vapour; but besides this, all those cells, filling up the interstices *between the veins*, contain a number of little round bodies, some of almost inconceivable minuteness, termed *molecules* and *granules*. For the sake of distinction we call those *granules* which present a clear central space, surrounded by a dark zone; while those which are termed *molecules*, are mere spots or points of variable magnitude. When the larger bodies present a green appearance, they are termed *chlorophille granules*. These bodies sometimes exhibit under the microscope, a series of extraordinary movements, a constant and rapid shifting and interchange of position, owing, doubtless, to certain attractive and repelling properties, which seem essential to the constitution of all matter.



As I mentioned just now the existence of *Chlorophil* in the interior of the

cells of the Leaf, it will readily be admitted that, since the cellular structure of the organ is colourless and diaphanous, the green colour of leaves generally must depend upon the presence of this granular material. Such is actually the case, although at first it might not seem probable.

But it now may be asked, upon what does a difference of colour of the leaves or any other part of a plant depend? This is an interesting question, but we cannot now fully enter upon it; let it suffice me to state, generally, that the granular matter is either red, blue, green, or violet, according as, in the one case, it is *disposed to reflect*, or has an *appetite for reflecting* the red, or least refrangible rays; or, as in the other instance, it reflects either the violet, or most refrangible rays; or any of the other intermediate rays, of which a beam of solar light is constituted. In what, however, this inherent property of absorbing or decomposing light consists, we cannot at present determine; therefore, without entering any further into the "Theory of Colours," we shall at once return to what we were discussing respecting the *contents* of the vesicles or cells.

Beside *granules* every true cell contains, at some period or other, a small oval or round body, called a *nucleus*. This nucleus is usually regarded as the centre from which the cell originated; but there are numerous theories as to the mode in which cells spring up and are developed; and the subject of cell development, or *Cytogenesis*, being of extreme intricacy and delicacy, to enter further upon this subject would be altogether foreign to our purpose. I cannot waive it, however, without remarking by the way that there seems to exist in the human mind an insatiable desire to unravel Nature's greatest mystery. It is this that has unhappily led many of our most enlightened philosophers to start aside from the truth once revealed, to place their faith only in the vague notion, "That organized bodies, whether simple, compound, or complicated, are all of *spontaneous origin*." Thus fatally overlooking the first, the great, the eternal cause!

But to return. Beside the *nucleus*, we often find a quantity of Crystals, or Raphides. These bodies viewed under the microscope have frequently the appearance of bundles of fine needles. They are very numerous in the leaf-stalk of the Rhubarb, in which plant they exist as oxalate of Lime. Starch grains are also found, but these occur more frequently in the cells of the root and fruit, as in the Potatoe and Wheat.

There is one other deposit to which I shall briefly allude, that is called *Lignine*, or *Woody Matter*. This substance is that which gives to the veins or ribs of the leaf a tough and fibrous character, and in its more highly-developed condition it constitutes *ordinary wood*; while in the seeds of many foreign Trees, such as the Ivory Palm for example, it assumes an almost stony hardness.

I have now to say a few words about the vessels of the leaves. Vessels are elongated cells placed end to end, which sometimes communicate with each other, forming complete hollow tubes; at other times they are closed. Their

size varies; they frequently contain in their interior large spiral fibres coiled up; and they are so numerous and strong in the leaves of the Bananas and Plantains of India, that the natives draw them out by handfulls, and dry them for tinder. There seems to be a universal tendency in all organized masses to develop themselves in a spiral manner; and in respect to the arrangement of leaves on the stem, its consideration is included in that department of the study of Morphology, which has received the name of *Phyllotaxis*.

Beside these spiral vessels, there is another class of vessels, called *Laticiferous*, because there circulates in them a peculiar milky fluid, called *Latex*. This structure is more abundant in some plants than in others; this is especially the case in the Common Dandelion.

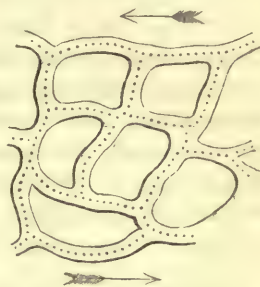
Thus much for the vessels or vascular system of the leaf; let me now direct particular attention to the skin or covering of it: this is a more interesting structure.

The external covering, or *Epidermis* generally consists of a single layer of transparent cells on each side, which do not contain any of the green granular matter of which we have spoken. It is remarkable for the number of openings or mouths which it presents.

The mouths, or *Stomata*, are formed by the apposition of two or more cells, which have the appearance of lips. The lips close or open according to the humidity or dryness of the atmosphere, and thus regulate the passage of fluids to the leaves. They occur more generally upon the under than upon the upper side of the leaf, sometimes in equal numbers upon both. Their number also varies in different plants.

Many leaves are covered with *hairs*. These hairs are simply prolongations of cells from the general covering; but, like all other organs of the plant, their external configuration is subject to the greatest variety of form. Hairs are by no means of little importance. Cotton itself is manufactured from the hairs surrounding the seeds of the *Gossypium herbaceum*, or common cotton-plant of India. Many hairs secrete at their base an acrid irritating matter, which, if applied to the skin, communicates a burning sensation, frequently attended by great pain. Every one is familiar with the sting of the common nettle. These stings are conical hairs, the apex or top of which is closed by a globular or button-shaped projection, resembling a pin's head. The slightest touch causes this little prominence to fall off, when at the same time the sharp end of the hair immediately beneath pierces the skin, and the irritating fluid within is thrown out.

Some hairs secrete oily, resinous, and adhesive matters; in the latter case, insects lighting upon the leaves stick there and die. By such means some plants are preserved from the injurious attacks of insects, which would otherwise have effected their destruction. Hairs also serve to protect certain plants



in times of great drought; this is done by preventing the sun's rays falling upon the deeper structures of the leaf, which would otherwise abstract so much moisture as to cause it to shrivel up and decay; of this the *Verbascum thapsus* forms an excellent example. Certain cells, as those at the base of the hairs on Nettles, are possessed of the property of *Contractility*, by virtue of which a variety of phenomena in different plants are effected. It is owing to this irritability that we observe those curious and familiar movements in the *Mimosa pudica*, or sensitive plant; and another striking illustration of this property is exhibited in the leaves of the *Dionæa muscipula*, or Venus' Fly Trap. The closure of the leaf is here caused by the flies touching certain hairs which grow from the upper surface of the blade.

We have other appendages to leaves in the form of *Thorns* or *Prickles*, and sometimes even flowers. I could only mention concerning the former, that they are merely continuations of the Ribs or Veins, beyond the ordinary cellular tissue at the margin of the leaf, the points of which become very hard and sharp, owing to the increased deposit in its cells of woody matter, or lignine. These occur, however, more frequently as abortive branches.

Edinburgh, January, 1852.

CAPTURE OF THE LANCELET, (*AMPHIOXUS LANCEOLATUS*.) AT HERM.

BY J. W. LUKIS, ESQ.



THE notice of the discovery of so rare a little fish in our seas, as the *Amphioxus lanceolatus* may not be altogether out of place in your valuable pages. I here send you the following account, taken from my notes on the day of its discovery, etc.

On the 4th. of April, 1848, I visited the island of Herm, which is distant about three miles east of Guernsey, for the purpose of examining its lovely shell beach, called Bel-val, which lies on the east side of the island. This island is between three and four miles in circumference, sloping to the north, and possesses many attractions for the conchologist over its sister isles. There are a few cromlechs, Druidic circles, etc., as well as the remains of an ancient chapel, which now forms part of the farmer's house who rents the land, to interest the antiquary.

The 4th. of April was a splendid morning, hardly a breath of air was stirring; a more propitious day for a water excursion could scarcely be had. The sea reflected the rocks and headlands, as in one vast mirror; the Sea-Gulls seemed to check their flapping wings, as if in doubt whether the still

air could bear them on their course; whilst their cry re-echoed far and wide, as we disturbed them from their resting-places; nought else but the measured stroke of our oars broke the stillness of the scene. We landed at the small unfinished harbour on the west side of the island, and soon walked across to the above beach, with all the requisites for a shell-hunting excursion. This beach, from high-water mark to about half-tide, is composed of one mass of shells to a considerable depth; not, of course, of the larger perfect shells, but of minute perfect shells, and fragments of the larger ones, with little or no sand intermixed with them. Below half-tide the sand commences, and extends a long way out to sea. As the tide gradually ebbed, I followed it down to its lowest ripple, picking up many varieties of shells on my way, (a list of some of the rarer ones I will hereafter give,) when the struggling of a small fish at the edge of the water attracted my attention. At first I supposed it to be a small specimen of the *Ammodytes lancea*, or the *Tobianus lancea*, both of which fish abound on this coast. As there appeared to be something about it different from what I had observed in the others, I put it into a wide-mouthed bottle, with sand and sea-water; and when I reached home, found that it was not the Sand Lance, but the *Amphioxus lanceolatus*; a description of which may interest some of your readers:—

The form of this little fish is compressed, smooth, and without scales, resembling somewhat the Sand Lance in colour; in length, nearly two inches; from the nose extending round the extremity of the tail, and terminating at the vent, is a delicate membranous dorsal fin: I could not trace the position of the eyes. Yarrell, in his excellent work on British Fishes, says, in his description of this fish, "The head, pointed, without any trace of eyes;" but when I entered the room in which I kept it, at night, with a lighted candle, it would dart in and out of the sand, evincing great uneasiness, and signs of fear, evidently shewing sensibility to light; therefore, I imagine it had the powers of vision. The nose rather protruded, the mouth on the under edge, narrow, elongated, and each lateral margin of it furnished with a row of slender filaments, regularly disposed. The anal aperture is situated one-fourth of the whole length of the fish in advance of the tail.

The body is strengthened by a flexible cartilaginous column, from which the numerous muscles diverge; and are arranged in regular order along the side of the body, diverging from a central line; one series passing obliquely upward and backward, the other series obliquely downwards and backwards. The cavity of the abdomen is large; the intestine, a canal of considerable calibre, without convolution; above is a row of flattened globules, which have the appearance of ova: it was so transparent that the viscera were plainly visible through. I kept this little fish in a glass bowl for several weeks, alive, giving it fresh sea-water nearly every day; thus affording me an opportunity of making drawings, and watching its habits narrowly, until my cat put an end to its existence, much to my vexation and disappointment.

It was particularly active, swimming round the bowl and darting in and

out of the sand, with the greatest ease and quickness; and often, when alarmed, would jump out of the glass bowl. When undisturbed, it seemed to rest about half-an-inch below the surface of the sand, inclining rather upon one side.

The following is a list of the shells I picked up, *and dug up*, from the sandy part of the beach:—*Macra glauca*: not common. *Solen ensis*: common. *S. pellucida*: rare. *S. vagina*: not common. *Trochus exiguus*: common. *T. magus*: common. *T. tumidus*: common. *T. crassus*. *Lutraria elliptica*: common. *L. oblonga*. *Donax complanatum*: not uncommon. *Tellina crassa*: not uncommon. *Psammobia strigilata*, *Turbo clathrus*, *T. clathratulus*, *T. Turtonis*, *T. elegantissimus*, *Pandora inequivalvis*. *Cypræa pedicularis*: common. *Venus chione*. *V. Sarniensis*: common. *V. verrucosa*: common. *V. aurea*: common. *V. fasciata*, *V. decussata*. *Arca fusca* and many fragments of *Arcanæ*. *Nerita litoralis*: common, etc.; and amongst the rocks and pools on the west side of the island, I found, for the second time, *Lima fragilis*, alive; and was much delighted in watching them dart from one side of the pond to the other, when disturbed. I also found four fine specimens of *Galeomma striata*, alive, and three of those singularly beautiful Star-fish *Comatula rosacea*.

I really must apologize for extending this article beyond reasonable limits, but the subject may be sufficiently interesting to plead for me.

Great Bedwyn, November 27th., 1851.

CONTRIBUTIONS TO THE FAUNA OF FALMOUTH.

BY W. P. COCKS, ESQ.

(Continued from page 18.)

Blennius ocellarius, *Bloch*.—A specimen, four inches long, and perfectly white, was dredged by Dr. Vigurs, in July, 1851, off Falmouth. It lived a week in confinement without change of colour: after death the body and fins changed to a light brown.

Blennius gattorugine, *Cuv*.—Under stones, sea-weeds, etc.: common.

Blennius Pholis, *Flem*.—In pools, under stones, etc.: common.

Gunnellus vulgaris, *Flem*.—Under stones, etc.: common.

Anarrhichus lupus, *Linn*.—Preserved skin of one, said to have been taken in the year 1846, near the Eddystone lighthouse.

Gobius niger, *Linn*.—Under stones, crevices of rocks, etc.: common.

Gobius bipunctatus, *Yar*.—In shallow pools, etc.: common.

Gobius minutus, *Cuv*.—In shallow pools, under stones, sea-weeds, etc.: common.

Callionymus lyra, *Linn*.—Trawl boats: not uncommon. December 1st., 1849, four young ones in the stomach of the *Morrhua Eglefinus*.

Callionymus dracunculus, *Linn*.—Not uncommon.

Lophius piscatorius, *Linn*.—Not uncommon.

Labrus bergylta, *Cuv*.—Common.

Labrus variegatus, *Gmel.*—Not uncommon.

Labrus trimaculatus, *Jenyns.*—Not uncommon.

Crenilabrus melops, *Cuv.*—Not uncommon.

Crenilabrus cornubicus, *Risso.*—Trawl refuse, in pools, under sea-weed, etc.: not uncommon.

Crenilabrus rupestris, *Selby.*—Trawl refuse, and stomach of the *Morrhua Eglefinus*: rare. Mr. G. Nichols, found one four inches long, on sands, Gwyllyn Vase, December 7th., 1849, after a severe storm.

Acantholabrus exoletus, *Cuv.*—In the stomach of a young *Morrhua Eglefinus*.

Loricaria cataphracta, *Linn.*—The specimen, (dried,) six inches in length, was brought to me in the year 1846; said to have been procured from one of our trawl boats.

Cyprinus auratus, *Linn.*—Domesticated.

Belone vulgaris, *Cuv.*—Trawl boats: not uncommon.

Scomberesox saurus, *Flem.*—On the sands, Gwyllyn Vase, after rough weather; stomach of the *Merlangus vulgaris* and *Merlucius vulgaris*.

Salmo salar, *Linn.*—Market: scarce.

Salmo trutta, *Jenyns.*—Market: not common.

Salmo fario, *Jenyns.*—Market: not common.

Clupea pilchardus, *Bloch.*—In the season, common.

Clupea harengus, *Linn.*—In the season, common.

Clupea Leachii, *Yar.*—Spring, fish-market: not common.

Alosa finta, *Cuv.*—Not uncommon.

Alosa communis, *Cuv.*—Not uncommon.

Morrhua vulgaris, *Cuv.*—Common.

——— var. *Yar.*—Not common.

Morrhua eglefinus, *Cuv.*—Common.

Morrhua lusca, *Flem.*—Common.

Morrhua minuta, *Flem.*—Not uncommon.

Merlangus vulgaris, *Cuv.*—Common.

Merlangus carbonarius, *Cuv.*—Not uncommon.

Merlangus pollachius, *Flem.*—Common.

Merlangus virens, *Cuv.*—Not uncommon.

Merlucius vulgaris, *Cuv.*—Common.

Lota molva, *Cuv.*—Common.

Motella tricirratus, *Nils.*—Common.

Motella cimbria, *Par.*—Under a stone in a shallow pool, extreme low water mark, spring tide, Gwyllyn Vase. The specimen measured two inches and one-eighth in length.

Motella quinquecirrata, *Cuv.*—Common.

Motella glauca *Jen.*—Pools on rocks, Gwyllyn Vase, Swanpool, etc.: not uncommon.

Phycis furcatus, *Flem.*—Not common. I procured three specimens in June, 1846. I have seen one since.

Platessa vulgaris, *Flem.*—Common.

Platessa flesus, *Flem.*—Common.

Platessa limanda, *Flem.*—Common.

Platessa microcephala, *Jen.*—Not uncommon.

Platessa pola, *Cuv.*—Not common. An epicure in fish-cookery in Falmouth, prefers this fish to the Torbay sole.

Platessa limandoides, *Jen.*—Fish-market; length, nine inches and a half: very rare.

Hippoglossus vulgaris, *Flem.*—Not uncommon.

Rhombus maximus, *Cuv.*—Not uncommon.

Rhombus vulgaris, *Cuv.*—Not uncommon.

Rhombus hirtus, *Yar.*—In ponds, Gwyllyn Vase, Trawl boats: not uncommon.

Rhombus punctatus, *Yar.*—Gwyllyn Vase, Trawl boats: not uncommon.

Rhombus megastoma, *Yar.*—Common.

Rhombus arnoglossus, *Yar.*—Common.

Solea vulgaris, *Cuv.*—Common.

Solea pegusa, *Yar.*—Rare.

Solea (monochirus) variegata, *Flem.*—Not common.

Monochirus linguatulus, *Cuv.*—Trawl refuse, stomach of *M. Eglefinus*: rare.

Lepidogaster Cornubiensis, *Flem.*—Common.

Lepidogaster bimaeculatus, *Flem.*—Not uncommon.

Cyclopterus lumpus, *Linn.*—Not uncommon.

Liparis Montagui, *Flem.*—Not uncommon.

Anguilla acutirostris, *Yar.*—Swanpool, etc.

Anguilla latirostris, *Yar.*—Swanpool beach, Green bank.

Anguilla mediorostris, *Yar.*—Same localities.

Conger vulgaris, *Cuv.*—Common.

Ammodytes Tobianus, *Jen.*—Not uncommon.

Ammodytes lancea, *Jen.*—Sands Gwyllyn Vase, Swanpool, Pennance, Mainporth, etc., extreme low water mark: not uncommon.

Syngnathus acus, *Jen.*—Trawl refuse, sands, Gwyllyn Vase.

Syngnathus Typhle, *Linn.*—Trawl refuse etc: not uncommon.

Syngnathus æquoreus, *Linn.*—Harbour, Trawl refuse, etc.

Syngnathus anguineus, *Jen.*—Harbour, Trawl refuse, etc.

Syngnathus ophidion, *Linn.*—Trawl refuse: not uncommon; under stones, sea-weed, etc., Gwyllyn Vase: rare.

Syngnathus lumbriciformis, *Yar.*—Under stones, sea-weed, etc., Gwyllyn Vase, Swanpool, Barpoint: common.

Orthogoriscus mola, *Cuv.*—(Short Sun-fish.) Mr. Arthur Chard captured one on June 22nd., 1850. Length, five feet nine inches; weighed two hundred and fifty pounds.

(To be continued.)

Miscellaneous Notices.

Occurrence of the Great Bustard, (Otis tarda,) in Devon.—On Saturday last I was much interested in examining, at the house of Mr. Drew, Taxidermist, Stonehouse, a fine specimen of the Great Bustard, sent to him for preservation, by J. G. Newton, Esq., Millaton Bridestow, Devon, with a note stating it was shot some days previously, (on December 31st.) The bird being perfectly fresh, and Mr. Drew having only just completed the operation of skinning it when I called, I had the opportunity of ascertaining the sex, and examining the contents of its stomach. It proved a female, and the stomach contained a large quantity of turnip leaves, mixed with several flat flinty stones about the size of a sixpence. The base of the feathers on the breast and back were of a beautiful rose-colour.—*John Gatcombe, Plymouth, January 5th., 1852.*

On the Cuckoo, (Cuculus canorus.)—So much having been said on the subject of Cuckoos in the late numbers of "The Naturalist," the following additional facts may not be unacceptable to some of your readers. In my collection I have six eggs of the Cuckoo, at least three of which were taken from nests of the Hedge Accentor, or Hedge Sparrow, in Middlesex; and it is remarkable that one nest contained the Cuckoo's egg *only* when it was found. I myself, in 1840, took a Cuckoo's egg out of the nest of the Reed Warbler, (*Salicaria arundinacea*), suspended between reeds growing in the River Isis, near Oxford: the said nest contained also three eggs of the Reed Warbler. From the very slender support which the reeds afforded to the nest, I infer that in this instance the Cuckoo deposited her egg *with her bill*. Is any other instance of a Cuckoo's egg being found in the nest of the Reed Warbler authenticated? I have shot a Cuckoo, a young bird of the year, early in September in Yorkshire.—*H. J. Torre, Pleasley, near Mansfield, December 5th., 1851.*

Note on the Cuckoo.—With regard to the question whether the Cuckoo assists in feeding its young, I have generally seen an old one not far from the nest containing the young Cuckoo. We once found an egg in a Wagtail's nest, not far from the house; the Cuckoo was frequently in the garden, and repeatedly uttered its cry of 'cuckoo,' but we did not pay sufficient attention to ascertain if it assisted in feeding the young one.—*G. Grantham, (in a letter to The Rev. F. O. Morris,) East Shalford, Guilford, September 18th., 1851.*

P. S.—I shot a young Cuckoo on Tuesday last.

Note on the Lapwing, (Vanellus cristatus.)—In the early part of last season, while walking over the hills which run between Midlothian and Peebleshire, on a bare elevated ridge of hill I found a nest of the Green Plover, (*Vanellus cristatus*), containing one egg. From the appearance of the egg, it was evident that the bird, if alive, would soon burst the shell. On detaching a portion of the shell, I found the bird alive, and apparently strong; thinking the mother had walked off with the other young, and left this unfortunate to perish, I

returned it to the nest, consigning it to its fate; however on walking down the side of the hill, towards a marshy spot at the foot of it, I saw a Lapwing running before me, and thinking this might be one of the birds belonging to the nest, I walked quietly towards her, as I believed it was the female. She continued running until I got within twenty yards, then dropping from under her wing an egg, she ran a few yards farther, then rose. On picking up this egg, I found the head and one of the legs of the bird protruding, and when entirely freed from the shell, it attempted to walk. Where I got the second egg was fully two hundred yards from the nest, so that the mother must have been carrying it from the nest, down to the marsh, and no doubt intended to return for the one she had left.—*D. M. Falconer, Loanhead, November 18th., 1851.*

Hen Harrier, Peregrine, and Buzzard, at Falmouth.—The *Circus cyaneus* was shot in the neighbourhood, August, 1851: in the possession of Mr. N. Tresidder. The *Falco peregrinus*, (male,) was shot in the neighbourhood, September 28th., 1851: in the possession of Mr. Chapman. The *Buteo vulgaris* was shot in Mylor parish, November 1st., 1851, by a sailor: in the possession of Mr. Chapman.—*W. P. Cocks, November 7th., 1851.*

Early disappearance of Swallows.—On the morning of the 2nd. inst., my attention was arrested by the assemblage of a large number of House Martins round a lofty factory chimney; a little distance from the spot Swallows were also assembled around the steeple of a church. I immediately recognised the intent of the meeting to be that of preparation for their voyage to warmer regions of the globe. I visited the place on the 5th., but found them all disappeared; I have seen several Swallows since, but not one House Martin. It seems rather singular to me why they should leave this neighbourhood sooner than any other, for on the 7th., in a town a few miles from here, I observed them flying about very actively, without the least symptom of being prepared for migrating.—*P. B.....w, Stockport, September 18th., 1851.*

To the list of Heronries recorded by Mr. J. Mc'Intosh, ("The Naturalist," vol. i. page 60,) I may add one that came under my own observation some years ago. It is situated on a small island, in the ornamental piece of water, at Beanwood—the country seat of the Marquis of Landsdown, about seven miles from Melksham, in Wiltshire, where I then resided. The island is separated from the park by about ten or a dozen yards. The Heronry consisted, if I remember rightly, of about a dozen or twenty nests, and the trees, contrary to custom I believe, are very low. I never had the pleasure of seeing this little community but once, and that was during the breeding season. Three unfledged young ones in one of the nests might be plainly seen through an opening in the trees, and the croaking of them and others was incessant. To this I may add that I believe one or two pairs occasionally breed in the woods round Hemsworth dam, a few miles from Pontefract,

which mill-dam is much frequented by them for food. I take this opportunity of returning my sincere thanks to Mr. W. P. Cocks, for his very explicit reply to my question, respecting the *Vespertilio emarginatus* and *Mus intermedius*.—*Henry Ferris, Kingsdown, Bristol, January, 1852.*

To the list of Heronries may be added, one at Henham Hall, the seat of the Earl of Stradbroke, Suffolk. I obtained eggs from it in the spring of 1848.—*H. K. Creed, Christ's College, Cambridge, December 5th., 1851.*

Among the Heronries omitted in Mr. Mc'Intosh's list, at page 60, of vol. i. of "The Naturalist," is that in Shute Park, near Axminster, Devonshire, the property of Sir John George Pole, Bart. It has been in existence several years, and still flourishes.—*G. P. R. Pulman, January, 1852.*

Nest of the Common Moorhen, (Gallinula chloropus.)—I remember having seen, about five years since, a Moorhen's nest in a similar situation to the one described by the Rev. R. P. Alington, in No. 10 of "The Naturalist." It was formed of the usual materials, in an alder stump, and at least three feet above the surface of the water. I used often to amuse myself by watching the young Moorhens run up and down the stump which leaned over the water, at an angle of about forty-five degrees. The indentical spot where this nest was formed, is a few score yards above Cloakham Bridge, on the River Axe, at Axminster.—*Idem.*

Colour of the Iris of the Red-necked Grebe, (Podiceps rubricollis.)—In compliance with your request at page 232, vol. i., respecting the colour of the irides of the Red-necked Grebe. I stuffed one killed in the River Mersey near this town, in January, 1850, the irides of which were lightish hazel. I thought at the time this might be owing to its being a young bird, but shortly after I had a young bird of the Great-crested Grebe, the irides of which were pinkish red; it is therefore probable that the eyes of these two closely allied species may differ more or less in colour, in the mature birds.—*In a letter to the Editor. James Cooper, Museum, Warrington, December 4th., 1851.*

Occurrence of the Ring Ouzel, (Turdus torquatus,) near London.—Having seen at page 213, vol. i. of "The Naturalist," a notice of a Ring Ouzel, (*Turdus torquatus*), having been shot in Norfolk, I beg to inform you that I shot one at Peekham Rye, not five miles from London, on the 22nd. of October last.—*F. D. Loames, 80, Old Broad-Street, City, London, November 6th., 1851.*

Black Redstart at Falmouth.—A fine male specimen of the *Phœnicura titrys* was shot by a lad yesterday—Gwyllyn Vase: in the possession of Mr. Chapman. December 1850, Dr. Williams' Son shot two specimens—females; the first was given to Mr. Olive, watchmaker; and the second to Mr. Chapman. Mr. May shot one the same week, and in the same locality—Gwyllyn Vase.—*W. P. Cocks, Falmouth, November 13th., 1851.*

Nesting of the Sparrow.—It has been asserted that the Sparrow, (*Passer domesticus*,) seldom, or never builds in trees; but this is not the case, for, at Ashes, near Culross, Perthshire, there were a great many Sparrows' nests on some larches in a small plantation there, besides others on tall beeches close by.—J. D., *Edinburgh, November 10th., 1851.*

Nesting of the Blackbird and Chaffinch.—At the same place—Ashes—I saw rather an unusual situation made choice of by a Blackbird, (*Turdus merula*,) for a nest, namely, in a bean rick. This bird seldom builds in any locality, except in trees, bushes, hedges, ivy, or in holes of walls, or rocks, according to Macgillivray. In the same rick, a Chaffinch, (*Fringilla cœlebs*,) also made its nest; not a very likely place for this bird either. This was in 1844.—*Idem.*

When out walking one day in October last, I saw a Kestrel in full chase of an unfortunate Rook, (*Corvus frugilegus*,) which seemed to be hard pressed by the Hawk. I at last lost sight of them behind some trees. This was in the neighbourhood of Torry, Fifeshire.—*Idem.*

The Misseltoe.—In accordance with the wish of Mr. Mc'Intosh, at page 155 vol. i. of "The Naturalist," I send you the following respecting the above parasite growing in this locality, namely, in Woburn Park, some years ago on the Whitethorn; in Ampthill Park, Beds., it is growing at the present time on the Lime, Poplar, Acacia, and Hawthorn; it also grows in Welford Park, near Newbury, Berks., on the Lime and Crab; in Herefordshire it grows on the Apple and Pear, but by far the most frequently on the Pear.—George B. Clarke, *Woburn, Beds., November 3rd., 1851.*

Marsh Marigold, (*Caltha palustris*.)—Is it not very unusual for this plant to be in flower at this time of the year? On the banks of the river near Waltham Abbey, it is blossoming just as it did in the spring. I saw it on Saturday last, when out sailing; I have never found it before later than the end of May.—S. H. Carter, *Bruce Grove House, Tottenham, November, 1851.*

Reviews.

The Vade-mecum, of Fly-fishing for Trout; being a complete practical Treatise on that branch of the art of Angling; with plain and copious instructions for the manufacture of Artificial Flies. Illustrated by numerous Engravings. By G. P. R. PULMAN, Author of "Rustic Sketches," "The Book of the Axe," etc. London: LONGMANS, 1851. 3rd. Edition, p. p. 186.

THIS title would perhaps appear to belong to a work hardly coming within the scope of the Naturalist; but, independently of the love of Natural History, which generally goes along with the love of fishing, the above little volume has claims on our space which we should be sorry, in any way, to disallow. The claims to which we allude are the many very interesting and faithful details of the Natural History, not only of the fish involved in a treatise of this

nature, but also of the various flies which are destined to be their food; nearly fifty pages are devoted to the Natural History of these creatures, and many valuable facts and observations are to be found in them.

The following extract is interesting, as showing the enormous increase of size which takes place in the common trout, when placed under favourable circumstances. Page 19.—

“But an instance has come under our own knowledge which cannot admit of dispute, for the water in which were captured the specimens (of trout) of which we shall speak, is miles from the sea, and has not the slightest communication with it, through any of its numerous feeders. We refer to the reservoir of the canal at Chard, in Somersetshire, a piece of water covering some seventy acres, in which common trout, weighing six and eight pounds, were taken with the net within two years after its construction; and one was found dead on the bank about the same period, which weighed more than a dozen pounds. These fish must have been supplied from the neighbouring tributary brooks, in which a trout above six inches long is perhaps never seen; and they afford additional proof—if such were wanting—of the physical peculiarity of fish, the growth of which, under favourable circumstances, has no limit, and is of marvellous rapidity.”

This fact is one of much interest; for it is seldom that fish are so isolated as to enable their origin and growth to be so decidedly traced, as they were in this instance. We had no idea that the growth of the trout was so rapid, even under any circumstances; and we had always thought the monsters one sometimes read of, to have been fish of some indefinite age, and which had, by slow degrees, attained such fair proportions; Mr. Pulman's fact is, however, quite decisive, that some operating cause, other than, and independent of, age, is at the bottom of such unusual increase.

The remainder of the work is occupied with the rod, line, flies, etc.; and the chapter upon the last is so good, and so well illustrated by wood-cuts, that if any reader of the book experiences difficulty in making the artificial flies, the fault will not rest with Mr. Pulman. This chapter is, to our mind, the best on the subject we have seen, and we have done a little in fly-making ourselves. The various *steps* are so clearly laid down, and so plainly described and illustrated, that we have no hesitation in recommending the “Vademecum,” as a fitting “pocket companion” for any brother of the angle. Mr. Pulman is a practical fly-fisher, and all his directions and advice are practical in their character, and if followed would, we believe, be found of much service to most amateurs.

Kidd's London Journal; a Literary, Scientific, and Family Paper. London: GEORGE BERGER, Holywell Street. p. p. 16. Published weekly.

THE first three numbers of this very amusing and instructive publication are now before us. A portion of each number is occupied by short reviews of various interesting works; and Mr. Kidd has judiciously allowed the authors to speak for themselves, by giving one or two extracts from each work.

Judging from the first numbers of the *Journal*, we anticipate much very useful information on the subject of domestic pets, of all kinds. This is a

subject which is identified with the name of Kidd, and is treated by him in a light and playful, yet solid, style, which cannot fail to secure him hosts of supporters; for who is there that has not some fortunate or *unfortunate* pet, the happiness of which may be increased or secured by following the advice that is and will be given in "Kidd's London Journal?" Many highly interesting anecdotes are given, and more promised. Who can read Mr. Kidd's account of the destruction of his splendid aviary by Rats, leaving him only *eleven* out of *three hundred and sixty-six* feathered bipeds, without sympathy; or of his turning the tables so completely on the invading army, as to annihilate it entirely, without gratification; we confess we could not.

The healthy and proper tendency of Mr. Kidd's writings is well known, and we are happy in being able to say that the present work is a *safe* addition to our domestic literature—no mean *desideratum* now-a-days—it will afford instructive amusement to the fireside, we hope, of many. In conclusion, we beg to wish "Kidd's London Journal" a *warm* reception.

Proceedings of Societies.

Royal Physical Society, Edinburgh.—The usual monthly meeting of this Society was held at 6, York Place, on the evening of Wednesday, December 3rd., 1851.—DR. COLDSTREAM in the chair,—there was a full attendance of members and visitors. The following gentlemen were unanimously elected office-bearers for the current session:—

PRESIDENTS.—John Goodsir, Esq., Professor of Anatomy, University, Edinburgh; John Coldstream, Esq., M. D., F. R. C. P.; and Hugh Miller, Esq.

COUNCIL.—Hamlin W. Lee, Esq.; Rev. John Fleming, D.D.; James Cunningham, Esq., W.S.; Robert K. Greville, L.L.D.; Robert Chambers, Esq.; and William H. Lowe, Esq., M. D.

TREASURER.—William Oliphant, Esq.

SECRETARY.—Wyville T. C. Thomson, Esq.

ASSISTANT SECRETARY.—George Lawson, Esq.

HONORARY LIBRARIAN.—Robert F. Logan, Esq.

It was remitted to the Council to forward to his Royal Highness, Prince Albert, a congratulatory address upon the success of his labour in connexion with the Great Exhibition, and also to memorialize the Treasurer upon the importance of forming in Edinburgh a museum of the geology and natural history of Scotland.

The following communications were then brought forward:—

1. DR. J. A. SMITH read a notice of the occurrence of the Black Tern near Coldstream, and exhibited a specimen of this bird shot in the beginning of July last. It was killed when flying in company with several others, apparently of the same species, in pursuit of its insect prey, on the banks of the Tweed. Dr. Smith believed the specimen before the Society to be an adult bird, though from the dullness of its colouring, when compared with others which he had examined from the south of England, he was led to the conclusion that it had only lately assumed its adult plumage. Like the other Terns, *Sterna nigra* is a summer British visitor, but, unlike them, it frequents rivers, ponds, and marshes, in preference to the sea coast, breeding amongst the grass and rushes of their borders. This bird is mentioned by Yarell, Jardine, and Macgillivray, as not having been met with in Scotland; and as this individual had pursued its prey to the northern bank of our boundary river, Dr. Smith considered it the first Scotch specimen. Mr. Archibald Hepburn, however, who was present, stated that some years ago an individual had been shot in East Lothian.

2. MR. EVANS exhibited to the Society a beautiful specimen of the Bohemian Waxwing, lately captured by him in the Experimental Gardens; and a specimen of the Nightjar, shot in Hoptoun woods.

3. MR. R. F. LOGAN presented the Report of the Entomological Committee on the Order Lepidoptera, and said that he had hoped it would have been undertaken this season by Dr. Lowe; and it was only at his request, in consequence of absence from home, and professional engagements at the height of the season, that he had been induced to enter upon the subject. He then proceeded briefly to detail the results of the various excursions undertaken by the Committee during the season for the purposes of investigation, and mentioned that many insects had been found which were probably additions to the fauna of Scotland—several probably undescribed species—and that the Committee had this year added twelve species to the list of Edinburghshire Lepidoptera, viz.—*Amphysa prodromana*, *Gracilaria auroguttella*, *Roeslerstammia pyraeana*, *Argyresthia arceuthina*, *Gelechia Cirsicola*, *Gelechia longicornis*, *Ornix torquilella*, (?) *Nemotois* ———, (?) *Argyresthia dilectella*, *Depressaria conterminella*, *Elachista* ———, (?) and *Ecapate gelatella*. Specimens of these and of a variety of other species captured during the past season were exhibited by Mr. Logan, who was highly complimented by the entomologists present for the beautiful manner in which they were set and preserved. It was mentioned that the use of chloroform is the best and easiest method of killing insects, as it at once deprives them of life without in the slightest degree injuring them.

4. MR. RHIND exhibited a drawing of a fossil animal lately found in the upper beds of the Old Red Sandstone in Morayshire, by Patrick Duff, Esq. The skeleton is that of a vertebrated animal, and, including the upper portion of the tail, measures about five inches in length. The head exhibits teeth in both jaws; there are four legs. The first six ribs have the usual curved form of the thorax of an air-breathing animal; the next six or seven false ribs extend outwards in a horizontal position; the whole structure of the skeleton bearing a resemblance to that of the *Draco Volans*, or flying lizard of the East Indies. It is to be hoped that a more particular description of this singular fossil will be given to the public by its possessor.

5. MR. RHIND then brought before the notice of the Society a collection of zoophytes from the Frith of Tay, near the village of Newport, chiefly with a view of pointing out a locality not hitherto much explored by collectors. Five species of *Sertularia* were exhibited; also *Plumularia falcata*, *Gemillaria lorculata*, etc.; fine specimens of *Laomedea dichotoma*; and specimens of *Laomedea gelatinosa*, from eight to ten inches in length. A muddy bottom and a considerable proportion of fresh water from the flow of the river, were supposed to have influenced the forms of some of the zoophytes exhibited.

6. MR. ALEXANDER BRYSON exhibited a suite of fine zeolitic minerals from the Bay of Fundy, Nova Scotia, collected by Professor Chipman, of Acadia College. The series comprised Chabasie, Heulandite, Stilbite, Analcime, Mesotype, Apophyllite, and Dysclasite. The crystals of Chabasie are peculiarly interesting, some being hollow, showing that, instead of crystalizing round a central nucleus, the external surfaces were first deposited. Mr. Bryson referred to similar examples occurring in Garnet, Iceland spar, etc. The foot-prints of the Sandpiper, from the Bay of Fundy, were also exhibited.

The Society then adjourned till the first Wednesday in January.

Natural History Society of Glasgow—7th. October, 1851. MR. HENNEDY exhibited specimens of *Bryopsis plumosa* and *Drapernaldia nana*, gathered by him in the course of the present season at Gourrock. The specimens were in fine condition, and the locality is interesting, from its being so far up the Frith.

JOHN SCOULER, Esq., M. D., F. L. S., then read a paper upon the geographical distribution of plants, and described the appearance of the vegetation in countries with different and opposite climates which he had visited.

4th. November, 1851. It having been resolved that the Society should have a Vice-president, W. B. LORRAIN, Esq., M. D., was unanimously elected to fill that office.

MR. W. FERGUSON exhibited a nest of the Hornet, taken from the roof of an outhouse in Aberdeenshire. The Hornet occurs sparingly in the south of England.

MR. ROGER HENNEDY exhibited specimens of a species of hydra from the Old Basin of the Forth and Clyde Canal.

MR. THOMAS FERGUSON exhibited a specimen of *Clostera reclusa* taken in the neighbourhood of Loch Lomond.

MR. THOMAS GRAY exhibited specimens of *Terebratulæ*, from the chalk, from which he had succeeded in perfectly removing the embedding rock. This he had done so carefully as to preserve entire the delicate processes in the neighbourhood of the hinge. No trace of the internal calcareous process, usually denominated by collectors "the carriage spring," and which seems a branchial support of some kind, appeared in these specimens. They were so completely divested of every trace of the matrix in which they had been fossilized, as to present all the appearance of recent specimens.

MR. GOURLIE read a communication from Dr. Seouler, "On the introduction of the potato into Scotland," after which Dr. Lorrain read "Some observations on the North American Helices."

2nd. December, 1851.—MR. W. FERGUSON read a communication from Dr. Seouler, entitled "Notices of the occurrence of the Reindeer in Scotland." This paper narrated the discovery of an undoubted portion of the horns of the Reindeer, as well as of portions of those of Red Deer, in alluvium on the banks of Clyde, near Renfrew. The notice will appear in a scientific journal.

DR. LORRAIN read a paper "On the structure and peculiar habits of a North American Snail," the *Helix concava*, pointing out its carnivorous character, and detailing its mode of nidification.

Two very fine fossil jaws belonging to a sauroid fish, were exhibited by MR. J. P. FRASER and MR. W. FERGUSON. They were obtained from the limestone quarries at Burdie House, near Edinburgh, and were accompanied with other specimens for comparison. A notice of them was read by Mr. W. Ferguson, detailing the position and character of the beds in which they were found, and pointing out the confusion that existed as to the remains of *Megalichthys* and *Holoptychius*; many of the remains figured as belonging to the former genus, being really those of individuals of the latter—even the *Megalichthys* of Dr. Hibbert's own memoir, in vol. 13 of the "Transactions of the Royal Society of Edinburgh," being the *Holoptychius* of Professor Agassiz. The jaws exhibited were about fourteen and a half inches in length, and contained reptile and ichthyolitic teeth, a group of the latter alternating with each of the former. Some of these reptile teeth measured two and a half inches in length. The specimens were referred to *Holoptychius* Hibberti. The other specimens exhibited were a portion of a *Holoptychius* from the Yellow Sandstone, (a member of the Old Red,) of Dura Den, Fifeshire, a fish probably not even generically allied to the *Holoptychius* of the Carboniferous system (Miller)—remains, such as scales and plates of both *Holoptychius* and *Megalichthys* from the Lanarkshire coal fields,—and specimens of *Sphenopteris affinis*, the characteristic form of the Burdie House bed.

The Querist.

Ichneumons. With respect to G's query relative to *Ichneumons*, I should like to speak positively on the subject, but I very much doubt their attacking insects absolutely in the pupa state; but I will answer for their attacking the larva whilst forming its silky cocoon; for I watched several of them, in the very act, for a considerable time in my own garden this last summer. I could not say they succeeded in piercing the insect, as the silky cocoon seemed to yield, much to their annoyance, for they seemed very angry about it. I shall be curious to see what other entomologists say upon this subject, and, if I live another year, I shall try to make some experiments, so as to be able to come to some decision. BOMBYX ATLAS, November 13th., 1851.

D. G. F. Ether, I should think, may very well answer for killing small insects for the cabinet, provided they are spanned out after the English fashion. It is not, however, sufficiently powerful for the robust sorts, simply stunning them for a while. If the insects are spanned out, (as all mine are,) after the Continental fashion, ether is rather objectionable, as it makes the wings too rigid, and necessitates the operation of damping; still ether is a very good thing when a person is going out for a long day's hunt, as it makes the insects go to sleep, and they come home safely without injury. I generally contrive to put my smaller insects in quite little pill boxes, and then kill them in a smothering box, burning a little phosphorus or brimstone underneath; it answers very well. Muriatic acid is a very good thing for the larger insects. Idem.

A MEMENTO OF HAINAULT FOREST.

BY A LONDONER.

IN these days of exhibition, science, and art, it seems surprising that a forest belonging to the crown, and within an hour's ride of a densely-populated city, should be on the point of being inclosed; yet so it is; Hainault Forest, in the county of Essex, not twenty miles from London, is doomed by order of the Commissioners of Her Majesty's Woods and Forests, to destruction. I do not know whether the act of demolition has yet commenced, and it is now my intention briefly to relate, as well as I can remember, one, out of many, of my pleasant rambles in that Forest, with the hope of showing, that not only is it a favourite resort for pleasure-parties, but also that it is a place peculiarly suited to the London lover of Natural History, who, with only a day, or even a few hours, to spare, can resort to it, and there follow, without molestation, his favourite pursuits.

It was, as near as I can recollect, one of the mornings from the 15th. to the 20th. of April, that I left the smoky city to obtain a little pure air, and to enjoy a day in the country. A train which started from the Eastern Counties Railway Station at ten minutes past ten, conveyed me, at the rate of about fifteen miles an hour, to Romford. It was a splendid day, the sun was already high in the heavens, and the Lark, that "crested herald of the morn," soaring almost out of sight, poured forth its loud yet sweet notes, surpassed, in my opinion, only by those of the Nightingale.

Arrived at Romford, I looked in vain for any sign which could possibly give me an idea of the whereabouts of Hainault Forest: in vain I strained my eyes in every direction, from north to south, and from east to west: I saw nothing, and almost began to doubt whether such a Forest did not find an existence only in my dreams, but a glance at my map, published in 1850, showed me that my thoughts were not imaginative, but real. I walked through the small, but I cannot say pretty, town of Romford, in the direction my map pointed out, and at about a ten minutes walk from the Railway Station, the continued cawing of some Rooks made me pause a few minutes to observe them. The Rookery belongs, as a ploughboy informed me, to a Mr. Makenzie, and is an extensive one. The grounds where the Rookery is are walled in, but a road runs towards the Forest along the side of part of the wall, and the tops of some of the high trees hang over the road, or nearly so. I have often noticed that when I have been standing in a Rookery during the breeding-season, the Rooks leave their nests and fly cawing around; but here, (and I have often noticed it elsewhere,) although I stood under the branches of the trees on which their nests were, the Rooks seemed as unconcerned, and went on feeding their young, as if no one were there; a certain proof, I conclude, that they knew, perhaps by instinct, or perhaps by experience, that the wall was a sufficient barrier against intruders.

After a pleasant walk of a couple of miles, which brought me to the top of a small hill, I at last perceived a dark, noble, heavy-looking mass of trees, extending some distance, and which I at once concluded must be Hainault Forest, which conjecture ultimately proved true. The sight of the Forest cheered me, and after a short one mile walk, I stood on its borders. I looked to the right, to the left, and in front of me, and saw nothing but trees, shrubs, pools, and wild wastes. I have spent a great portion of my time in the country, yet seldom I think have I felt so happy as then. In that moment, business, time, and indeed everything, was forgotten, and the only damp there seemed to be to my pleasure was, that at the setting of that sun which shone so gloriously over my head, I must retrace my footsteps, I felt and knew I was free, and knew that there I could roam where I liked, without fear of interruption by a man in corduroys, shooting-coat, and wide-awake, calling himself bailiff or keeper, asking me if I knew I was trespassing, and that I should oblige him by walking off. But I happened to look behind, and then I started and awoke from my reverie, on seeing, not a dozen yards off, the well-known inscription of "All persons found trespassing on these premises, or injuring these fences, will be prosecuted," painted on a black board, affixed to a post set up on the hedge of a piece of land, which was no doubt stolen from the Forest.

In order to avoid this, to me, unpleasant object, I walked on, determined before stopping again to penetrate further into the Forest. The Forest was miserably wet, and at first I tried to pick my way, but finding that, in spite of so-named waterproof boots, my feet became wet, I relinquished that mode of proceeding, and went, not as the dry land pleased, but as I wished. The trees there, if I recollect rightly, are mostly Elm and Oak, but I think there are almost as many Pollards as trees. There are also a great number of small Holly bushes there, as well as some very tall May and Black-thorn trees, round which, in many places, the Ivy, with its death hug, has grown quite thick, and often hangs over the sides of the topmost branches.

At the entrance to the Forest I flushed a brace of Partridges. I noticed a good many of that beautiful bird the Jay, the habits of which, from behind a tree, I could watch to my perfect satisfaction, but on my showing myself, uttering their hoarse and well-known cry of "kar, kar," they immediately flew off. This is one of my favourite birds, and always has been, even when it used to steal the cherries from our garden when I was a boy; and I have often watched them alighting on a small branch, when, for the first minute or so, you almost doubt whether they will not lose their balance and fall, but by dint of a little exertion, they soon right themselves, and even then every "kar" they utter generally sets them moving to and fro.

While walking here one day, I heard some Jays making a great noise, and wondering what it was about, advanced cautiously to where they were, in order to ascertain, if possible, what the matter was. Unfortunately, still advancing, I kept my eyes fixed on a Jay, perched on a tree some way off,

who was uttering his cry, raising his crest, and seemingly in a state of great agitation; when all of a sudden a splash, a sudden sinking and a cold sensation of one leg, announced to me that I had put my foot in a pool. At the same instant I heard a flutter, and on looking up perceived a bird flying off, the Jays still uttering their harsh cry. I paid no attention to the bird, thinking only of extricating and drying myself; but shortly afterwards advancing a few paces in the direction the bird flew from, I perceived a half-plucked Jay dead on the ground. I took it up and examined it, but perceived no marks of violence about it except a blow on the back; I took two or three of the small beautiful blue wing feathers with me and left it there. I roamed about here for hours, sometimes listening to the everlasting "chink, chink" of the Chaffinch, or else watching from behind a tree or bush the Long-tailed or Blue Tits perform their interesting antics; while at others the shrill cry of the Snipe made me look up, to notice the beautiful evolutions and zig-zags that bird performs on rising. I found a great many Blackbirds and Song Thrushes' nests; some with eggs, others with young ones, and some only building. In a nest of the latter of these birds, a female bird sitting, allowed me to come within a foot or so of her nest, and with her bill and neck raised, and her glossy black eyes fixed on me, seemed as though she were entreating me to spare her nest and eggs. Those pretty little fellows, the Redstarts, were flying from twig to twig, shaking about their beautiful red tails; while every now and then the cry of the Cuckoo or Woodpecker would lead me to the place from whence the note came in search of them.

On turning a corner, I saw a Crow feeding on the ground, which no sooner perceived me than it flew away, and was presently joined by another, which I saw fly from a tree a short distance from where I was standing. On approaching the tree, and seeing a few twigs reaching over a large fork at the top of it, I immediately concluded there was a nest there, and on climbing to it, found a nest with four eggs still warm. Only two of these eggs were alike; they were of a greenish bluish ground, flaked, particularly at the larger end, with large patches of blackish brown colour; the other two were in colour like a Jackdaw's, only they were not so glossy, and were larger. Wanting a specimen of a Crow's egg and nest, I took them. The nest, which was very large, was composed on the outside of dried roots and twigs, while the inside, which was also very large, was lined with grass, hair, tow, etc., and between the outside and inside, a layer of mud was placed.

The evening approaching, I walked to Chigwell Row, and having refreshed myself at a wayside Inn, walked back to Romford, a distance of about five miles, and about half-past eight was again in London, after having spent a very pleasant day. I have been informed a coach starts from Gracechurch Street to the May Pole, Chigwell Row, and vice versâ every day, but I have never been by it, nor do I know the time of its departure or arrival. I scarcely met a single soul in the forest, with the exception of now and then a few bird-nesting boys, and one or two persons, who, no doubt like myself,

had come there for a country walk; and the only animals, besides pigs and cows, that I met, were now and then a stoat as he crossed my path; or the water rat twisting himself in and out among the roots of the trees along the sides of the ponds, or else as I watched him swim from one side of the pond to the other.

This was my first excursion to that delightful Forest, but I have often been there since; and have there, towards the evening at dusk, watched the stag beetle, or the buzzing cockchafer flying through the air, or the Owl stealing along on its noiseless pinions, waiting to make its supper on some unwary mouse; or else from the parlour of the small country inn—the May Pole, near Chigwell Row, (where I used to refresh myself after my walk,) observe, on a beautiful summer's evening, the Swallow skimming the pond in front of the inn; sometimes darting high in the air, whilst at others splashing the water with its wings, as it seemed to take no notice of the bystanders: and who would have had the heart to destroy it, if they knew that, perhaps in the out-houses around the inn, a young brood was crying for the food it was so laboriously obtaining? I have seen a good many different kinds of birds in the Forest, and I have no doubt but that most of our common birds, from the Robin—

“The bird, who by some name or other,
All men who know thee call thee brother,”

and Wren, to that small, yet powerful bird the Kestrel are to be found there, for it not only possesses trees, pollards, shrubs, and brambles, but both marshy and very dry ground, besides which there are, at least, one or two streams running through it.

I dare say I am one of many, who cannot afford to give too much time to the study of nature; and I ask, if Hainault Forest is to be inclosed, and the trees cut down, where is the Londoner, who has a little spare time, and does not wish to stay in-doors all day, to go? Is he to go to Hyde Park and watch the dirty London Sparrows scratch over the Horse's dung in Rotten Row; or is he to go to Kensington Gardens and hunt a whole day to see a Chaffinch or Robin, or should he be very fortunate, he might perchance see a Lesser Spotted Woodpecker once or twice a year? Or perhaps the Commissioners might say, he can go to the Court Yard of Somerset House and watch the Pigeons feeding; or he can take a walk to Highgate; (not knowing perhaps, that should he move out of the turnpike road, he would, in most places, be taken up for trespassing.) Besides, what is it that makes our country look so pretty? Is it not our hills and dales, our fine trees, parks, and forests; and do we not all know how wretched and barren a country without trees looks; and who knows but that some day, with such unmerciful Commissioners, it may come to that. No, let it never be said, that the Commissioners of the Woods and Forests, of such a great Nation as ours, were so mean, in the year 1852, as to deprive the people of a healthy and

useful place of exercise, within an hour's ride of a city, containing more than two millions of human creatures.

December 9th., 1851.

NOTES OF A RAMBLE ON THE
RAILWAY LINE TO LITTLE-HEMPSTON, RETURNING BY
WAY OF GATCOMBE.

BY S. HANNAFORD, ESQ., JUN.

IT has often occurred to me that the Botany of some of our Railway lines must be very varied, from the different kinds of soil through which they pass; and with this idea, a few days since, I bent my steps over that portion of the line which leads to Little-Hempston, a village about two miles from Totnes. The morning was intensely hot, but still the dew-drops lingered on the grass, glittering in the sunbeams; and the River Dart, which I crossed, rippling over its pebbly bed, added a delightful coolness. Very few persons are aware of the beauty of a summer's morn in the country, before the heat becomes unbearable; the cheerful music of the mowers sharpening their sythes; the twittering of the Swallows as they skim overhead; the sweet song of the Lark, as he soars high above; and the sweetness of everything around; all tending to contentment and happiness. Wilmot, in his "Summer-time in the Country," remarks, That "men wear out their days and strength in searching after happiness; but they have only to stoop and gather it up, or look inward and find it." How true indeed is this! Were there more observers and lovers of Nature, there would be much more health and happiness in this world of ours.

Almost immediately on crossing the Railway bridge over the Dart, the delicate blue flowers of the Narrow-leaved Flax, (*Linum angustifolium*,) attracted my attention, as I had never before met with it in this neighbourhood. Mary Howitt speaks of it as

"The Flax-flower—
—As blue as in the sky;
And 'tis a dainty little thing
We say as we pass by."

I have found great difficulty in preserving a specimen of this pretty flower, as the petals drop off at the slightest touch. The Yarrow, (*Achillea millefolium*,) so well known from its feathery leaves, grows here of a beautiful pinkish tinge—it is more commonly found white. The embankments were covered with the deep purple flowers of the Self-heal, or Heal-all, (*Prunella vulgaris*;) the great White Oxeye Daisy, (*Chrysanthemum leucanthemum*;) and the pink and white flowers of the Rest Harrow, or Cammock, (*Ononis avensis*;) and Smaller Bindweed, (*Convolvulus arvensis*;) trailing prettily along in all

directions: here pink, there white. It derives its generic name from the Latin word *Convolvo*—to bind—whence its English name of Bindweed. Some beautiful pink flowers tempted me to scramble up a steep embankment, which I found to be those of the Musk Mallow, (*Malva moschata*,) easily known from the others by its deeply cut leaves, and faint smell of musk, on being drawn through the hand. The dark crimson flowers of the Knapweed, (*Centaurea Jacea*,) and the light blue of the Devils bit Scabious, (*Scabiosa succisa*,) contrasted beautifully with the white of the Bladder Campion, (*Silene inflata*,) and many of the umbelliferous plants. The Knapweed is said to be called *Centaurea*, on account of the Centaur Chiron having with this plant cured himself of a wound received in his foot from Hercules.

I could not resist the temptation to rest awhile by the side of the Willow plot on the left, just above Hempston, to listen to the little Sedge Warbler, Reed Fauvette, or Sedge Bird, (*Salicaria phragmitis*,) which may be heard here both by day and night. I am informed by the Rev. F. H. Hele, of Little-Hempston—a gentleman who has devoted very much of his time to Natural History, that these birds have bred there for seven years in succession; and that, although he had heard them at almost all hours of the day and night, he had never been able to see one until very lately. The Willow plot is about an acre in extent, by the side of a small stream, with pretty much sedge and rush about it; and these summer visitors appear to prefer it to any other spot, for they are not heard elsewhere in this neighbourhood; although there are many places equally suited to their habits within half-a-mile. Bewick, vol. i. page 216, remarks, "It sings incessantly night and day during the breeding-time, imitating by turns the notes of the Sparrow, the Swallow, the Skylark, and other birds, from whence it is called the English Mocking Bird."

In endeavouring to get a glimpse of this little songster, I met with the Yellow Toad Flax, (*Linaria vulgaris*,) and near the water the Branched Bur Reed, (*Sparganium ramosum*,) and the Great Water Plantain, (*Alisma plantago*,)—an upright plant, two or three feet high, with three delicate pink petals; the leaves which spring from the root are very large and oval, on long stalks: it may be found on most streams. The powdered root is said to be a cure for hydrophobia. It is called the *Alisma*, from *Alis*, the Celtic word for water. The Figwort, (*Scrophularia nodosa*,) was plentiful here; as indeed it is everywhere in Devonshire.

Nearer Little-Hempston I found the Hemp Agrimony, (*Eupatorium cannabinum*,) growing in a dry situation on the line, although it generally prefers moist places near lakes or rivers: the flowers are a sort of reddish purple, growing in tufts, and the plant has an aromatic smell. A little further on, the Trailing St. John's Wort, (*Hypericum humifusum*,) was in great abundance at the bottom of one of the embankments; but although in flower, the stems were not above four inches long: it generally grows to a height of six inches or more.

Turning into the path fields on the left, leading to Little-Hempston church,

I observed the Marsh Valerian, (*Valeriana dioica*,) a pretty plant with flesh-coloured flowers; and on a wall, close by the stone stile, the Red Valerian, (*Centranthus ruber*,) grows of a rich crimson colour. I went a little out of my course up a hill to the left, after crossing the stile, as I had previously observed the Gromwell, (*Lithospermum officinale*,) and found it now in flower—its straw-coloured flowers almost hid by the leaves; its seeds are four in number, and exceedingly hard: hence its name of *Lithospermum* from *Lithos*—a stone, and *sperma*—a seed.

A short walk through the village brought me into the Exeter turnpike road, about half-a-mile beyond Gatcombe. Here in a hedgebank I saw a withered specimen of Black Mullein, (*Verbascum nigrum*,) the only one I have ever seen hereabouts; and occasionally the Great Mullein, (*V. Thapsus*,) three or four feet high, covered with large handsome woolly leaves, which Clare calls

“Antique mulliens flannel leaves,”

and terminating in a dense spike of beautiful yellow flowers. Its generic name appears to have been originally *Barbascum*, from *Barba*—a beard; on account of its shaggy leaves. It was formerly used in medicine. In the hedge in this road the handsome Bee Orchis, (*Ophrys apifera*,) may be found earlier in the season: now, I could not obtain a single specimen, and am indebted to a kind friend for one from this spot. Here too the Deptford Pink, (*Dianthus armeria*,) its flowers pink, speckled with white; and the little Eyebright, (*Euphrasia officinalis*,) one of the most beautiful of our wild plants, grows in a dry hedgebank. The flowers of the Eyebright are of a very delicate white, slightly striped with purple and yellow. The plant was formerly much used in diseases of the eye: hence its English name. This and the Cow Wheat, (*Melampyrum*,) are said to be parasitic on the roots of grass.

I turned into a piece of rugged, barren ground near the Inn, and was well repaid for my trouble. The ground was literally covered with the Bird's foot and Hop Trefoil; the former beautifully tinged with red; the little Thyme-leaved Sandwort, (*Arenaria serpyllifolia*;) the Milkwort, (*Polygala vulgaris*;) the Pink Centaury, (*Erythraea Centaurium*,) in all directions—a handsome little plant, used as a domestic medicine. The Rest Harrow, and many others which have been enumerated, earlier in the season.

Between Gatcombe and the turnpike I found one specimen of the Melilot, (*Melilotus officinalis*), which is used in making the Swiss cheese, called “Schabzieger;” and the Common Agrimony, (*Eupatoria Agrimonia*)—its spike of yellow flowers just making its appearance. I noticed the Tutsan, (*Hypericum Androsaemum*,) and Hairy St. John's Wort, (*H. hirsutum*,) which may be distinguished from the others by the calyx being fringed with small black glands and downy leaves. Close by the turnpike grows the little London Pride, (*Saxifraga umbrosa*,) so well known in all our gardens: a rare flower in Devonshire, and not included in the “Flora Devonensis.” In Ireland it is called St. Patrick's Cabbage. In the Quarry, near Bridgetown, the Wild

Mignonette, (*Reseda lutea*,) was in flower—it is very similar to the cultivated plant, but wants its delicious odour. And lastly, I found the little Wild Thyme, (*Thymus serpyllum*,) round which the bees were hovering; covering the ground with its pale purple flowers.

Totnes, July 6th., 1851.

LOCAL JOTTINGS.—No. 2.

DORCHESTER—DORSETSHIRE.

BY J. GARLAND, ESQ.

“Our River, and its finny inhabitants.”

THE River Froome is a very pleasant clear stream, which rises near Evershot, and, passing through this town, empties itself at length into the sea at Poole. From Maiden Newton, a distance of eight miles north-west from Dorchester, to Stafford, etc., a distance of three miles below, I know not anywhere, Stockbridge perhaps not even excepted, of a better stream for artificial fly-fishing. It consists of very good shallows, over gravelly bottoms, alternated with a few deep holes here and there. In many respects it reminds one of those delightful localities so graphically described by that dear old lover of the art of angling, Izaak Walton. Often have I mused over his tomb in the fine old Cathedral Church of Winchester.

The Trout, (*Salmo fario*,) which abound in that space of the river above described, do not run to a large size, rarely exceeding one pound and a half, but they are early in season, and are marked with brighter red spots than those of many other rivers, feeding, as these do, chiefly on insects. In a culinary point of view, they are excellent indeed. Very good artificial fly-fishing is to be had nearly throughout the year, the best about the month of June.

The Dace, (*Leuciscus vulgaris*,) is another well-known inhabitant of this stream. It is of rather a small size, and of course, being more gregarious than the Trout, is more local, and not so abundant. It may be easily taken by the artificial fly in April and May; and its bright, silvery, and glittering appearance not a little adds, I assure you, to the pleasures of a river lounge.

The Minnow, (*Leuciscus phoxinus*,) is in great abundance, and affords excellent feeding for that comparative monster the Trout. They are to be met with in all the gullies and cuttings in the water meadows, and at about the middle of summer are of the brightest orange and red colours that can possibly be imagined. They look very pretty in a glass globe, with or without gold or silver fish, but they cannot be kept very long alive.

The Eel, (*Anguilla*,) is very common also in this portion of the stream, but rarely attains a large size, from the comparative absence of mud. At

the mill-ponds and weir-holes, and in the deeper parts of the stream, however, they arrive at a larger size. They are of a light silvery appearance, and considered by epicures very good eating, are caught chiefly by night lines, baited with Minnows, and are to be purchased at a very reasonable price.

The Lampern, (*Petromyzon fluviatilis*), is also occasionally met with, and I have already spoken of this at page 170, vol. i., of this work.

The Crayfish, (*Astacus fluviatilis*), which, when boiled, looks very like, and in some opinions is little inferior to, the Lobster, is frequently to be met with in this river, and lives in holes formed in the soft banks of the meadows, and under old stumps of trees. It is seldom met with above two or three ounces in weight, and they afford much amusement to the boys who take them, as well as a little pain occasionally, which I can vouch for from experience, from their making free use of their "nippers."

The Pike, (*Esox lucius*), is found below Stafford, where the river gets deeper, and, as a matter of course, the Trout and other fish before described gradually decrease in numbers. There are several interesting species of fresh-water Shells, Frogs, and Newts, and also the Water Rat, well known here, but which do not come within the scope of this "Jotting."

Minnow, (*Leuciscus phoxinus*).—I know not if the following trifling incident be worthy of mention, but as it appears to me to be rather singular and unaccountable, I venture to make a minute of it:—A gentleman of this town has a well in a small field, which is kept always covered, except when water is occasionally drawn from it. The well is about twenty-five or thirty feet in depth. Some little time since, it was observed that whenever the bucket was drawn up some Minnows were therein, and afterwards many were from time to time taken by a rod and line. This lasted a very considerable time, and he could nearly always calculate on a "catch" upon drawing up the bucket. He cannot in any manner account for their being in the well.

Woodcock, (*Scelopax rusticola*).—This well-known migratory bird is, I should think, unusually early in this neighbourhood, as I know of an instance of one being shot on the 24th. October, and of another on the 31st. October, both close to Dorchester.

Dorchester, December 6th., 1851.

A DAY'S BOTANY IN ROSLIN AND HAWTHORNDEN, IN OCTOBER.

BY J. B. DAVIES, ESQ.

I very much fear that Botanical Rambles are so plentiful as to be almost at a discount in the pages of "The Naturalist;" I cannot plead any exception to the rule in behalf of this short notice of mine, on account of novelty of the species or mode of writing. I can only say in my behalf, that I wish to record one of the few delightful trips I have had this season, and to shew

what may be done in one day, and that by no means a laborious one, in the neighbourhood of Auld Reekie. Well, the summer had passed away, and the autumn was preparing to follow it; indeed it was the first day of October, a month of sunshine and shower, even in merry England, and in Scotland presenting generally more of the latter than agreeable; when, accompanied by two non-botanical friends, I took my way per coach to the village of Loanhead, about six miles from Edinburgh, and from thence by a delightful walk to the gate of the old Hermitage of Hawthornden, the ancient seat of the Poet Drummond, the contemporary and friend of Ben Jonson. In the narrow lane on our way, beneath the shade of Lime and Elm trees, now almost entirely bare, we found a few mosses, as *Hypnum rutabulum*, *H. cupressiforme*, *H. squarrosum*, *Bryum ligulatum*, *B. punctatum*, *B. hornum*; the common *Tortulas* and *Jungermannia bicuspidata*, and *J. Tamarisci*. Then there were the common hedge plants, though few and far between. From an old stump grew a beautiful tuft of *Agaricus fascicularis*, with its pretty yellow cap and olive-coloured stem; while the *A. tener* peered fearfully above the grass, now nearly hidden by the mass of fallen leaves, covered with minute fungi; those of the *Acer pseudo-platanus* being literally pied with the black blotches of the *Xyloma acerina*.

Arrived at the Hermitage, and through the viewable sights thereof, we passed into the wood, among everything calculated to make us feel anything but city men. Before entering the wood, we halted a few minutes to admire the tree under which the two men whose names shed a literary halo round the spot first exchanged salutations. It is a fine old Sycamore, or Plane-tree, as we term it, though in reality neither, being the *Acer* before alluded to. It is told that Drummond, meeting his southern friend on the lawn, cried out,

"Welcome! welcome, noble Ben!"

To which the other answered as jocosely,

"Thank ye, Thank ye, Hawthornden."

The tree, under which they so often sat in converse, is still in good health, and now measures thirty-six feet in circumference near the base. The old square box-like cave, in which the Poet used to write, is hewn in the face of a perpendicular rock; and in place of Poet's bays, was crowned, on the occasion of our visit, with a profusion of the fresh green leaves of *Luzula sylvatica* and the *Vaccinium myrtillus*. Another cave of interest is that in which Robert Bruce hid himself in the days of Scotland's trouble; and in it is shewn the huge two-bladed sword, said to have been borne by the royal hero in defence of his country. This cave is more spacious, containing in its stony breast, a library, bed-room, and parlour, and, like the retreat of the Poet, is difficult of entrance, being hewn in the face of a rock, and commands a fine view of the closely-wooded dell, or valley. Close by Bruce's cave we found *Asplenium adiantum nigrum* and *Polypodium vulgare*.

Passing into the wood and treading on the fallen honours of the year, we found Mosses without number, and Lichens almost as plentiful. The common Yellow Lichen, (*Parmelia parietina*), is not confined to walls, as its name implies, but was found decking the stems of old trees with its sober yellow hue; and the Ivy, (*Hedera helix*), climbed up their trunks and crept along their leafless branches, making the old young again in its covering of unfading green.

The Honeysuckle, (*Lonicera periclymenum*), was still sparingly in flower. Of Fungi, I picked nearly a score; and among others the common Mushroom, (*Agaricus campestris*), *A. piperatus*, *A. semiglobatus*, *A. aurantiacus*, the long bell-shaped *A. comatus*, and *A. ovatus*. On one or two spots in Roslin dell we found the Wavey Hair Grass, (*Aira flexuosa*); and we frequently came upon patches of the tufted species, (*A. cœspitosa*), with its large panicles of shining silvery hue. The object of our search, however, was the more rare grass, the *Milium effusum*, and we were successful enough to procure a few half-withered plants, growing among thousands of *Bromus asper* and *Melica uniflora*. The ferns must not be passed over; besides those already noticed, the large feathery fronds of *Lastrea filix-mas* and *Athyrium filix-femina* were everywhere seen waving in mournful beauty among the sere and yellow leaves of autumn. Between the crevices of the rocks, the Wall-rue, (*Asplenium ruta muraria*), held its place, and was accompanied by *A. trichomanes* and *Lomaria spicant*.

Alopecurus agrestis flowered in patches near the uneven shady walk in Roslin; and close by the old chapel I found a few specimens of the Flat-stalked Meadow-Grass, (*Poa compressa*.) Besides the Fungi already mentioned, I procured fine specimens of *Agaricus dealbatus*, *A. micaceus*, *A. semiovatus*, and *A. peronatus*; with a whole multitude of the smaller parasitic kinds, as *Æcidiums* and *Uredos*.

After all, perhaps it would have been as much to the purpose to have given a simple list of the plants found; and thus more information might have been conveyed, and less space occupied; but "The Naturalist" dislikes dry details, and so do I!

Edinburgh, November 18th., 1851.

A BOTANICAL RAMBLE ON THE SEA COAST, BETWEEN GOODRINGTON AND PAIGNTON.

BY S. HANNAFORD, ESQ., JUN.

A BRIGHT cool morning tempted me a few days since, in company with a Botanical friend, to explore the Botany of the sea-side. The nearest point at which we could reach the sea was Paignton, a small village about five miles from where I write. We started early in the morning, preferring the old Paignton road, through Berry and Blagdon, as more shady than the new, which brought us out nearly opposite Collaton. In our way we noticed the

Linum angustifolium, or Narrow-leaved Flax, which Murray, in his handbook of Devon and Cornwall, mentions as growing in this road. At Collaton, instead of pursuing the straight road to Paignton, we turned to the right, and after walking about half-a-mile on the turnpike road, we were induced to turn into a corn-field on the left, attracted by what appeared, or rather what we hoped to be, the *Centaurea cyanus*, or Corn Blue Bottle, or Bluecaps, as Clare calls them—

“Summer’s bluecaps blossom ’mid the corn,”

rather a scarce flower in this neighbourhood, but which turned out to be the *Cichorium Intybus*, (Wild Succory,) which is very plentiful in the vicinity of Paignton. Its flowers are large, blue, and star-shaped; they open about eight in the morning, and close at four, when the sun is declining. Hooker says, “The Egyptians eat a great quantity of this plant.” The roots have been used as a substitute for coffee, and the expressed juice is said to be a cure for phthisis. It derives its name from the Arabic “*chikourych*.”

Onwards we went over hedges and ditches, until we espied a quarry on a hill, about two miles from Goodrington, which we turned aside to explore, but met with nothing not previously obtained, except the remains of the *Sanguisorba officinalis*, (Great Burnet,) named from *sanguis*—blood, and *sorbeo*—to absorb, from its supposed styptic properties. Leaving the fields, we got into a road which led us to a wood west of Goodringham, near a limekiln, where we gathered a single specimen of *Ruscus aculeatus*, (Butchers’ Broom,) (the ancient name of which was *buscus*, from the Celtic “*bruskelen*,”) or Box Holly. The flowers are very minute, and white or yellowish, and rise from the disk of the evergreen leaves. The berries are red, and make their appearance in winter. It was formerly used as a medicine, but is now rarely, if ever, employed.

At the end of the wood, we clambered over a wall to the left, to explore a long ditch or drain in a marsh near Goodrington, where we espied, much to our delight, the Dewberry, (*Rubus cœsius*,) a plant often mistaken for the Common Blackberry, (*Rubus fruticosus*,) but the fruit is larger, and the grains fewer in number, with a bluish bloom; leaves ternate, whilst those of the Blackberry are pinnate. Shakespeare mentions the Dewberry in “*Midsummer Night’s Dream*,” Act iii., Scene 1. Titania says,—

“Be kind and courteous to this gentleman;
Hop in his walks and gambol in his eyes;
Feed him with apricocks and dewberries.”

The commentators on the word do not quite agree as to what it refers. Hawkins says, “Dewberries are strictly and properly the fruit of one of the species of wild Bramble, called the Creeping Bramble; but as they stand here amongst the most delicate fruits, they must be understood to mean Raspberries, which are also of the Bramble kind;” and Henley remarks, “Dewberries are Gooseberries, which are still so called in several parts of

the kingdom;" but it has been ascertained that about Stratford, the fruit of the *Rubus cœsius* is well known as the 'Dewberry.'

By the side of the ditch, a handsome group of the bright pink flowers of the *Epilobium hisutum*, (Great Hairy Willow-herb,) nearly six feet in height. Its generic name is from *epi*—upon, and *lobos*—a pod; the flower being placed upon the top of the elongated seed-vessel. It is very commonly called "codlings and cream," from the resemblance of the smell of the top shoots to that of scalded codlings. Following the course of the ditch, we gathered specimens of *Apium graveolens*, (Wild Celery,) *Anthriscus sylvestris*, (Smooth Cow Parsley,) *Equisetum limosum*, (Smooth Naked Horsetail,) etc.

Clearing the ditch by a good running jump, we got into a long "Devonshire lane," where the Vervain, (*Verbena officinalis*,) grew abundantly, with its spike of pretty pale blue flowers, opening three or four at a time on each spike. It is very abundant in England, growing everywhere by road-sides and waste places. Pliny tells us the Vervain was made use of by the Druids in casting lots, in drawing omens, and in other magical arts; and Borlase, in his "Antiquities of Cornwall," page 91, speaking of the Druids, says, "They were excessively fond of the 'Vervaine;' they used it in casting lots, foretelling events, etc. It was to be gathered at rise of the dog-star, but so as neither sun nor moon be at that time above the earth to see it;" "and with this charge," adds Miss Pratt in "Flowers and their Associations," "that before they take up the hearbe, they bestow upon the ground where it groweth honey with the combs, in token of satisfaction and amends for the wrong and violence done in depriving her of so holy a hearbe." It was once called "Holy Herb;" and the Greeks and Romans used it at their religious festivals, and sent it by their ambassadors in treaties of peace.--

"A wreath of vervain heralds wear."

DRAYTON.

The power of keeping away evil spirits is attributed to the Vervain in Ireland, as well as to the St. John's Wort, mentioned in a former paper, and also in Scotland, for Meg Merrilies says,—

"Trefoil, vervain, John's wort, dill,
Hinders witches of their will."

In Ireland, when it is pulled by village doctors, when the dew is on the ground, these lines are generally repeated:—

"Vervain, thou growest on holy ground,
In Mount Calvary thou wert found;
Thou curest all sores and all diseases:
And in the name of Holy Jesus,
I pull you out of the ground."

Ben Jonson also makes mention of it.—

"Bring your garlands, and with reverence place
The vervain on the altar."

It was called in Celtic *ferfaen*, from *fer*—to drive away, and *faen*—a stone, from its supposed medicinal qualities; but it appears to have quite lost its repute.

The long lane before mentioned brought us at last into the Brixham road, and turning into a field on the left, we met with *Artemisia maritima*, (Sea Wormwood,) scarcely yet in flower, and the beautiful Vipers' Bugloss, (*Echium vulgare*,) the flowers of a bright reddish purple when in bud, afterwards blue. From the supposed resemblance of the seeds when ripe to the head of a Viper, arose the opinion that this plant not only possessed the virtue of curing the bite of that reptile, but also of destroying the reptile itself. It is said that bees which feed much upon the flowers are subject to a corrosion of the wings.

Now we arrived within view of the sea, and descending the cliffs about two miles beyond Goodrington, quickly discovered *Plantago Coronopus*, (Buck's-horn Plantain,) and *Plantago maritima*, (Sea Plantain,) *Daucus maritimus*, (Sea Carrot,) easily distinguished from *Daucus carota*, (Wild Carrot,) which it much resembles, from the umbels being destitute of a central coloured flower. *Lathyrus maritimus*, (Sea-side Everlasting Pea,) covering the cliffs in all directions with its flesh-coloured flowers. In a cleft of the rock we discovered the Sea Fern, (*Asplenium marinum*,) a locality not before recorded, which alone amply repaid us for our long walk. After resting a while on the rocks, determining our specimens, etc., which we most thoroughly enjoyed, the sea dashing around us, the sea-breeze refreshing us with its delightful coolness, a fleet of fishing-boats in the distance, and Torquay in the background, making the scene delightful in the extreme, we again started over the cliffs to Goodrington, and found in abundance the Samphire, (*Crithmum maritimum*,) and the Teasel-headed Trefoil, (*Trifolium maritimum*.)

On the sands about Goodrington, we obtained specimens of *Solanum nigrum*, (Common Nightshade,) a pretty plant somewhat like the Potato flower. It is common in waste places near houses. Its flowers are white; the fruit at first green, afterwards black, containing many kidney-shaped seeds. Woodville, in his "Medical Botany," page 238, tells us, "The smell of this plant is faint and disagreeable; to the taste it manifests no peculiar flavour, being simply herbaceous. It appears to possess the deleterious qualities of the other Nightshades in a very considerable degree; even the odour of the plant is said to be so powerfully narcotic as to cause sleep. The berries are equally poisonous with the leaves." In the same situation grows the *Cakile maritima*, or Sea Rocket, a fleshy glaucous plant with large lilac flowers.

In a marsh at Goodrington, near the beach, we observed *Fœniculum vulgare*, (Fennel,) with its large, feathery, much-divided leaves, and *Glaucium luteum*, (Yellow-horned Poppy. On the sands, *Eryngium maritimum*, (Sea Holly,) and a single specimen of Moth Mullien, (*Verbascum blattaria*.) It was anciently supposed by some, that this plant was highly agreeable to Moths, Butterflies, etc., from its odour, and by others, that it was found useful in destroying that species of insect which infests paper and books.

We had only time to reach Paignton by daylight, and discover Maywort, (*Artemisia vulgaris*,) scattered about everywhere, and on some sandy soil near the beach, *Erodium maritimum*, or Sea Crane's-bill, and were compelled to leave it for a future ramble.

Totnes, August 11th., 1851.

A MICROSCOPIC EXAMINATION OF THE OVA OF PENTHALEUS CAPIDARIUS.*

BY SPENCER COBBOLD, ESQ., M. D.

Senior President of the Royal Medical Society of Edinburgh.

THE Ova, to which I wish to direct the attention of the Society this afternoon, are very much allied in character to those of the common Harvest Bug, (*Leptus autumnalis*,) and the common Itch Insect, (*Acarus scabiei*,) and are considered by Mr. Edwin Giles, of Ipswich, to be those of *Penthaleus capidarius*, or *Acarus capidarius*, formerly called *Acarus sellucis*.

The eggs now exhibited to the Society, are scattered over the surface of Granite; and for the specimen before us, I am indebted to Stephen Jackson, Esq., of Ipswich, who picked it up on the sea shore at Vallo, in Norway, during the past summer; and by whom I am also informed, on the authority of Mr. King, of the same town, that in the year 1842, it was very common to find them attached to flints, old tiles, brickbats, and the like in the neighbourhood of Ipswich, but since then it would seem that they have disappeared from that district.

When seen with the naked eye they look as minute white specks, and viewed

1



singly, are scarcely discernible. Fig. 1. represents a section of the specimen of the Granite, with the Ova scattered on its surface. When, however, we examine them with a common pocket lens, we can at once detect their form

* Read before the Physiological Society of Edinburgh, November 22nd., 1851.

and recognise their nature. Their diminutive size is a character common to most species of the same family, (*Acaridæ*.) To obtain, however, a more satisfactory knowledge of their morphology and construction, it is necessary to subject them to much higher magnifying powers, and the drawings now before the Society, represent them at different stages of development, magnified two hundred and fifty diameters linear.

The chief points of interest, to which we may direct our attention, bear reference to their external configuration; the changes in form during development; and the manner in which the mature embryo or larva makes its escape from the outer covering or *shell*.

The general form then may be at once recognised as that of a sphere flattened and depressed from above. (See Figs. 2 and 3.) This button-like character is by no means an unfrequent appearance in the eggs of insects generally; and though I have not seen any precisely similar illustrations to those before us in the works of recent entomological writers; there is, nevertheless, figured in the great work of Swammerdam, Plate xxxiii, Fig. 1, a very similar form of an egg, belonging to one of the Noctuæ, or Post Meridian Moths; it is devoid, however, of certain markings, which, in the specimens before us, have a very chaste appearance, and which represent a series of alternate elevations and depressions, (twenty-five in number,) running from a central elevated point, to the outer border of the button-like surface.



When viewed laterally, and especially if the specimen be immersed in some transparent medium, not only are these morphological features readily confirmed, but we observe, through the outer covering, or *shell-membrane*, a small round opake body, situated immediately under the central prominence, as seen as Fig. 4. This, there can be little doubt, corresponds to the Yolk, or Vitellus in the Ova of birds and other animals, being enclosed in a special and distinct envelope of its own, constituting the Yolk Sac, or Vitelline membrane.

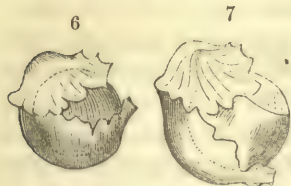


Keeping our attention fixed from time to time on the same Ova, we observe that this opake body or Yolk increases at the expence of the surrounding medium, or albumen, which is situated between it and the shell membrane, the alterations in form of which latter structure, are almost entirely confined to the cupola, or cup-shaped surface. I have employed the term *Cupola* here as expressive of the change which this part of the covering undergoes, becoming, as it does, in course of development, dome-shaped, or convex; (see Fig. 5,) whereas in the first instance we found it depressed or concave; its central point only being excepted. (Fig. 3.)

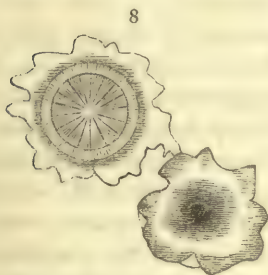


We have now arrived at the period when the embryo, or germe, enclosed within the Yolk Sac, has nearly attained its mature con-

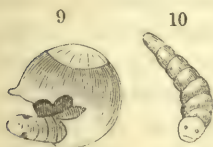
dition; and having exhausted the pabulum afforded by the albumen for its growth and nourishment "within," it is necessary that fresh materials be obtained from "without:" this can only be effected by a twofold change, which takes place as follows:—*First*, we have the shell membrane giving way for the escape of the *Yolk Sac*, with its included germe. This does not always take place exactly in the same manner; for sometimes the escape is made by the cupola being thrust on one side, and the *shell* membrane is broken up in various directions. (Figs. 6 and 7.) While at other times the Sac forces up the cupola by a pressure equally applied, and causes it to fall off, after the manner of the extinguisher-like calyx of *Eschscholtzia*. (Fig. 8.)



The *Second* change consists in the breaking up of the Vitelline membrane, or *Yolk Sac*, and of the consequent escape of the adult embryo or larva. This takes place at any part of the circumference of the membrane, except at that portion which was situated under the cupola. The reason of this seems to be owing to the deposition of a white material, precisely similar to that which covers the external membrane, and which is analogous in function to the calcareous shell in the case of birds; but as to its composition, nothing definite can be advanced.* For



what purpose the secondary shell exists: why it should occupy such a limited portion of the *Yolk bag*, and in what way it is here secreted, are queries, for the solution of which we will hazard no conjecture. The existence of grooves on its surface, corresponding to those of the cupola, are also quite discernible on the secondary shell. (Figs. 7, 8, and 9.)



The Sac having ruptured, the larva, which is of a bright crimson colour, escapes in the usual manner. (See Figs. 9. and 10.) It presents a pair of distinct eyes, but no feet, while the annular divisions of the body are barely apparent. As to the process of development in *Ovo I* can add nothing new, but will conclude with

a short extract taken from the last Edition of Dr. Carpenter's valuable work on the "*Principles of Physiology*." (Page 387:—)

"In all cases the embryonic mass within the egg is first converted into a footless worm, resembling the higher *Entozoa*, or the inferior *Annelida* in its

* Since writing the above, I have been informed by Mr. Drummond, one of the members of the Society, who has lately made some chemical investigations on this subject, that the horny-like material, forming the shell of the Ovum, consists of *Chitine*; the formula of which is closely allied to that of the *Proteine* compounds. It is well known that this substance enters largely into the composition of the tegumentary system of Insects generally, and is especially abundant in the *Coleoptera*.

general organization, but possessing the number of segments—*thirteen*—which is typical of the class of Insects.”

Edinburgh, February 2nd., 1852.

REMARKS ON THE ATTACKING OF PUPÆ BY ICHNEUMON FLIES.

BY JOHN GRAY, ESQ.

IN No. 9 of “The Naturalist,” we observe a query from a correspondent, whether the pupæ of insects were pierced by the Ichneumon, and what proof could be adduced in support of any such assertion?

This has, we believe, been long a matter of dispute amongst entomologists; and till recently we were ourselves often puzzled about it. It is well enough known that caterpillars, when preyed upon by Ichneumons, in some cases, really undergo the chrysalis change, before the creatures kill them. This is not unfrequently the case when a caterpillar has been attacked when nearly full grown; the larvæ of the Ichneumon, by a very wonderful degree of instinct, refraining from injuring any of the vital organs, till they themselves are nearly full fed. Hence the fact of Ichneumons emerging from a chrysalis where their presence had not been previously suspected; having, indeed, been fed within the body of the caterpillar for a short time, and then completing their metamorphoses after it assumed the pupa state. That such is the case is now pretty well ascertained from the recorded experience of several naturalists; but here any further elucidation of the question, which we propose to deal with, stops; at least we are not aware of any practical observations having yet been made. It is also, we believe, well known, and this must be borne in mind, that the pupæ of caterpillars so attacked invariably die not long after their change into the chrysalis state. It is evident that they must do so, for as soon as the parasitic larvæ have devoured the internal organs, life must become extinct. From these observations it is quite clear that any facts bearing on the question at issue, can only be gleaned from watching the progress of the development of the chrysalis, *after it has been collected in the pupa state.*

About two years ago we collected a considerable number of the pupæ of moths, by digging around the roots of various shrubs and hedges; one of these we found exposed above the surface of the ground, where it had evidently been turned up some time before by the scratching of barn-door fowls at a farm-house, in the immediate vicinity. On taking it up we at first suspected that it might be injured, but were soon reassured by the lively wriggling of the abdominal segments, and its otherwise healthy appearance. We placed it in our breeding cage, and on examining it some days afterwards, we found it still apparently healthy. As no moth made its appearance, however, during the whole summer, we then criticised it a third time, but with a very different result, for on taking it up, we found the pupa case had become quite thin

and yielding; and on opening it we discovered that in the interim it had been completely cleaned out by an Ichneumon of some size, the pupa of which was ensconced in the interior almost mature.

The facts which we think we are fairly entitled to deduce from the above case is, that the pupa had been pierced by an Ichneumon during the time it had been lying exposed on the surface, for had the creature been attacked before it changed into the chrysalis it would have died long before. We are satisfied that it could not have been a recently changed pupa, as it had evidently been scraped up from the spot where it had passed the winter months. The period when we found it was about the middle of April—too late for the changing of any winter-feeding larvæ, and too early for the spring ones; any of which we have never noticed changing till the beginning of May. The pupa in question was about the size and of the same colour as that of *Semiophora gothica*.

We think that it may be also deduced from the above fact, that the piercing of pupæ by Ichneumon Flies is in a measure accidental, and consequently of rare occurrence; that they do run the risk of such attacks, however, is sufficiently obvious from the great care with which nature provides against them, in supplying many kinds with a cocoon quite impenetrable by the ovipositor of an enemy, while with many others the want of such protection is well supplied by descending into the earth, and there remaining secure, and in other cases crevices and lurking-holes form a good means of escape, by eluding detection.

From this we see an example of the working of one of the most beautiful laws of nature, by which one race prevents the undue increase of another, and the means employed on the other hand to prevent any such destroyers from overstepping their given limits; for it is quite evident that were the pupæ of Lepidopterous insects as much exposed to external attacks as they are in their previous stage, their numbers would be decreased to an undue extent, and the number of their enemies increased in a proportional ratio, which would be sure to end, if there were no preventative, in the confusion which must result from the violation of any of those harmonious laws which constantly meet the admiring eyes of the naturalist.

Glasgow.

Miscellaneous Notices.

The Spaniel.—A friend of mine was acquainted with a man who had a dog of the above breed, which was very much attached to him. The dog's master it seems, was a particular friend of "John Barleycorn's;" and on one of his occasional visits to the house where that notable person may be found, his companions blacked his face for a "lark." Not being aware of the trick they had played him, he left the house and went on his way home.

The dog not liking his master's strange-looking face, began barking at him—would run away, then come back, and cut such capers that his master exclaimed "there is something or other the matter with me, but none is so faithful as my dog to inform me of it." He looked at himself over and over again but could see nothing uncommon; but however, the dog continued in his efforts to make his master understand what was the matter with him. Followed by young urchins, who were merry at his expense, he went into the first house he came to, and there a peep at the mirror told him what his sagacious dog wished him to know.—*M. Westcott, Wells, Somerset, December 4th., 1851.*

Sagacity of a Dog.—The love of companionship by all animals is well known, and is mentioned by White, L. 66. The Rev. F. H. Hele, of Little-Hempston, near Totnes, had a few years since, a Water Spaniel which was much attached to the family, and never seemed happy when alone, even if left merely for a few minutes. Whenever any of the family were about to go to the village, about a mile off, the dog always followed, and if driven back, was sure to gain his point at last; but strange to say on a Sunday morning he quietly escorted his friends to the end of the garden gate, and returned to his usual station outside the house door until their return from church.—*S. Hannaford, Jun., Totnes, December, 1851.*

Common Brown Rat, (Mus decumanus.)—These Rats are so voracious, as to devour their own species when caught in a trap, as I have repeatedly proved.—*Idem.*

The Great Bustard, (Otis tarda.)—The increase of cultivation, together with the more frequent use of the gun, has with many birds produced almost, and perhaps in a few cases total, extinction, while on the other hand, the practice of preserving game has given to many a shelter which before they could not obtain, and a great increase in their numbers, and sometimes the appearance of a new species, has been the result. The Common Bittern, which used many years ago to be really common in the fenny parts of Norfolk, is so no longer, and the small remnant still in existence is rapidly decreasing in number. The same might have been said of the Bustard some years ago, but now I think it must be considered as extinct, even in this county, which has so long been its stronghold. West Acre seems to have been its favourite resort, and there, little more than thirty years ago, as many as nineteen were seen in one flock. They were constantly to be seen in the neighbourhood of Thetford. The Rev. R. Lubbock, in his "Observations on the Fauna of Norfolk," says that a keeper, by the name of Turner, at Wretham, about six miles from Thetford, some fifty years ago, in severe weather, used to kill many Bustards by looking for their tracks in the snow, and feeding them for a day or two with cabbages. He next constructed a battery of three large Duck-guns, bearing on the spot where the food lay, and secreting himself before daylight in a hole some one hundred and fifty yards from the guns,

by means of a long string fastened to the triggers he effected a general discharge on the first favourable opportunity, and in this way he once obtained nine Bustards at one shot. I am happy to say that at West Acre they were better cared for, every protection having been extended to them. A lady residing at Swaffham has one in her collection taken at Cougham, about twenty years ago, also a pair and one young one, which, when alive, were in the possession of her family. A gentleman residing at Gayton informs me that he has seen as many *hens* together as eleven, but not for several years, and he is of opinion that they are extinct in this county. Many years ago, a hen Bustard was brought to him by his shepherd, very much devoured by the Crows; he had it preserved, and it was afterwards presented to the Norwich Museum. In 1831, a female Bustard was shot at Cougham; in 1832, another succeeded in rearing its young near Thetford; and the eggs, five in number, of three which bred on Massingham Heath, the same year, were taken away in ignorance of their being polygamous, and the sexes parting company during incubation, no males having been seen in the neighbourhood. Early in 1838, another female was shot in a turnip-field at Dersingham, near Lynn, which is the last that I can learn has been seen in this county. The Bustard, although at other times so shy, appears during the season of incubation to lose much of its natural wildness of character, and to become so tame as to admit of a near approach. The Rev. R. Lubbock, in the work before quoted, mentions an instance of one at Eldon, near Thetford, which, while sitting upon her nest, admitted of so near an approach as almost to suffer herself to be taken by a casting-net. Her two eggs were hatched under a Hen, and each produced a male bird. The above are a few particulars of the final history of this noble bird in Norfolk, and should your contributors in other counties, particularly Wilts. and Cambridge, be inclined to favour us with their remarks, I am sure they would prove most interesting to your subscribers.—*T. Southwell, Lynn, Norfolk, December 5th., 1851.*

Owl, (*Strix flammea*.)—A tame Owl was kept by a friend of mine in his house, for the purpose of destroying mice. He found it one morning quite dead, and an immense Rat by its side also dead; both bearing marks of a very severe combat.—*S. Hannaford, Jun., Totnes, Devon, December, 1851.*

Hawks.—I have frequently noticed that the male Hawk seldom comes near the nest whilst the hen is sitting; he brings the food to some tree adjoining, which is fetched away by the female. I was pleased, a few days since, to see my observation confirmed by Mr. St. John, in his "Tour in Sutherland," vol. i., p. 216, as follows:—"Whilst I was fishing in the Findhorn, at a place where a great many Kestrels bred, one of these birds came flying up the course of the river with a small bird in his claws. When he came opposite to the rock where his nest was, he rose in the air, and began to call loudly and shrilly for his mate, who soon came out from the rocks, and taking

the bird in her talons, flew back with it: the male bird after uttering a few cries expressive of pleasure, flew off to renew his hunting."—*Idem*.

Linnet, (*Linota cannabina*.)—I have heard a Linnet, kept in a cage in a room overlooking a garden, leave off his regular song at the approach of Sparrows, and assume their twittering, which it generally continued for two or three minutes without cessation.—*Idem*.

Laying of eggs by hen Pigeons.—Mr. Dixon, a page 60 of "The Dovecote and the Aviary," a most interesting book, which no naturalist should be without, mentions that the *unmated* hens in a dovecote will pair one with another, "go through all the ceremonies of pairing, make a nest, lay two eggs each, sit alternately and carefully, and if they are members of a large flock, very often rear young." A gentleman with whom I am acquainted kept a pair of hen Fantails in a dovecote, apart from his other Pigeons, which laid nearly thirty eggs during the summer, but they were all unproductive; and another friend informed me of a hen Canary kept alone in a cage, which laid eggs annually; of course also unproductive.—*Idem*.

Swallow, (*Hirundo rustica*.)—Jenyns, in his "Observations on Natural History," p. 159, says, "The Swallow has a peculiar note, which it utters in the height of summer, just at break of day, when it begins to get light. This note differs from its ordinary song at other times, in being less varied and lively, and is put forth in a peculiarly plaintive, and very monotonous manner; it is sometimes repeated for an hour together, and is always uttered from the chimney top where it is perched." Buffon also, vol. xvii., p. 473, remarks "While the female sits, the male spends the night on the brim of the nest; he sleeps little, for his twittering is heard at earliest dawn." I can myself bear testimony to this, having been kept awake for hours by this pleasing chirping of the Swallows at day-break, perched on the chimney tops, particularly, I think, about May or June.

"I love to be awake, and hear
His morning song twittered to dawning day."

HURDIS.

—*Idem*.

Capture of the Red-necked Phalarope, (*Phalaropus hyperboreus*.)—This uncommon bird was shot by Mr. C. Dobson, of this place, November 22nd., 1851.—*D. Ferguson, Redcar, December 2nd., 1851*.

Capture of the Stormy Petrel, (*Thalassidroma pelagica*.)—This bird was taken alive here on the beach, November 13th., 1851.—*Idem*.

Arrival of Swallows in 1851, at Lynn, Norfolk.—I saw the Swallow, (*Hirundo rustica*.) first at North Wootton, about three miles from Lynn, on the 18th. of April; it made its appearance there on the 17th. I first saw the House Martin, (*H. urbica*.) here on the 19th. of April. On the 20th. I heard the Cuckoo, and on the 18th. of May I saw the Swift, which continued with us until the 28th. of August. A friend informs me that he saw

a single Swift flying over the River Ouse, near Lynn, on the morning of the 16th. of September. I last saw the House Martin about the 14th. of October.—*Thomas Southwell, Lynn, Norfolk, November 5th., 1851.*

Rare Birds at Stockton-on-Tees.—I take the liberty of informing you that I purchased a very fine specimen of the Red-necked Grebe, (*Podiceps rubricollis*,) which I think very rare—shot on the 30th. of October, 1851, on the lake about a mile from this town. I have also a very superior specimen of the Canada Goose, and one of Bewick's Swan, shot on this river in the winter of 1850; and a specimen of the Bohemian Chatterer, shot in the winter of 1850; there were more than a dozen shot the same winter about this place.—*William Martin, Cleveland Row, Stockton-on-Tees, November 6th., 1851.*

Nest of the House Pigeon.—In my dovecote, near this town, it is the common practice of the Pigeons to use twigs in forming their nests. Those generally used are the dried twigs of the hawthorn and birch, and, but rarely, the American fir. The stable-yard is on one side of the house and the stack-yard on the other.—*J. B. M., Glasgow, October 23rd., 1851.*

The Stockdove, (Columba œnas.)—A friend of mine took the fresh eggs of the Stockdove from a rabbit-burrow in Beechamwell warren, on the 20th. of August last.—*T. Southwell, Lynn, Norfolk, December 5th., 1851.*

Note on the Cuckoo, (Cuculus canorus.)—Having seen in "The Naturalist" various accounts of the Cuckoo being heard different times at early periods of the year, it may not be uninteresting to your readers to have an account of a Cuckoo reared in this place by Mr. W. Plowman several years ago. It was taken from a Hedge Sparrow's nest, in the latter end of April; kept in a small room with a wood-lattice window, and fed for a short time at first with worms cut small, and for the rest of the time with lean raw flesh, (either beef or mutton,) of which it ate about a pound every week, and *never drank any water*. Mr. Plowman kept it in this way *through two successive winters*, parting with it to a friend of his a little after the end of two years, when it soon after died. It began to call the first year about the same time as others in the neighbourhood; the second year it started three weeks earlier. Its voice was as strong and clear as that of other Cuckoos.—*W. B. Gray, Tollerton, December 12th., 1851.*

Occurrence of the Little Auk, (Mergulus alle,) near Cambridge.—A very fine specimen of this species was presented to me for my collection by W. H. Jackson, Esq., of Trinity College, who found it alive, but in a very exhausted state, in a dry ditch close adjoining the highroad from Cambridge to St. Neots, about eight miles distant from the former town, November 21st., 1851.—*R. A. Julian, December 5th., 1851.*

Heronry.—There is one still in existence at the seat of Harvey Coombe, Esq., Cobham Park, Surrey.—*H. J. C., Blackheath, December 12th., 1851.*

A Pied Blackbird, (*Turdus merula*.)—I had a very fine specimen of this bird brought me for preservation; it was the largest and fattest I ever saw. There were several perfectly white feathers on the neck and breast, and the back was beautifully spotted.—*M. Westcott, Wells, Somerset, November 28th., 1851.*

Note on the Jackdaw.—As H. Crease, waggoner to Joseph Parsons, Esq., was walking through the cathedral yard a few days ago, he observed a Jackdaw standing on one of the twelve apostles, very busily engaged with something in his bill. After watching him some time, he let it fall, and it proved to be a penny piece of George the Third's reign.—*Idem.*

Remarks on certain species of Microlepidoptera.—In his concluding paper on Scotch Lepidoptera, your correspondent, Mr. Gray, in speaking of the genus *Lozotænia* of Steph., makes *L. Ribeana* a variety of *Heparana*, which, with all deference to Mr. Gray, for whom I entertain a very high feeling of respect, resulting from his philosophical views on the subject of Entomology, I cannot allow to pass unnoticed, as I believe no entomologist, ancient or modern, will agree with him, the species being perfectly distinct, and differing in the larva state, no less than in the perfect insects. *Sericoris 4-maculana* and *Orthotænia Antiquana* are synonymous, (vide Doub. Cat. of Brit. Lepid.;) but as the species occurs here in damp places among low herbage, the insect found among fir trees is possibly different. *Yponomeuta Padella* is probably *Y. Malivorella*. *Padella*, which if a Scotch species at all is very scarce, feeds on whitethorn. *Crambus Lythargyrellus* is probably *C. Warringtonellus*, Sta., or the rayed variety of *Perlellus*, one or other of which was taken, I believe, some years ago, near Dunbar, by Mr. R. Gray.—*R. F. Logan, Duddingstone, near Edinburgh.*

The Misseltoe has been found on the Oak at Penporthlenny, parish of Goitre, in this county; on one near Usk, and another at St. Dials, near Monmouth. The only other accredited instance is at Godalming, in Surrey. The same parasite was also found in Monmouthshire on the Ash, by the Rev. J. Herbert; and in one instance in France by De Candolle. Mr. Herbert also found it on the Elm in this county; and Mr. Taylor discovered an instance at Strensham Court, Worcestershire.—*From the Monmouthshire Gazette, sent by W. P. C.*

Anomalies in Grasses.—I have this day found in Golden Acre Nursery here, specimens of *Elymus hordiformis* and *E. Canadensis*: the first with numerous fine spurs of Ergot, and the latter with a compound spike, resembling five or six, but each of them shorter than the normal spike. Both specimens were exhibited at the meeting of the Botanical Society this evening.—*J. B. Davies, Edinburgh, November 13th., 1851.*

THE MICROSCOPIC HISTORY OF THE VINEGAR-PLANT.

BY J. B. DAVIES, ESQ.

A FEW years ago, public attention was called to a peculiar gelatinous body, which, when put into syrup, had the wonderful property of changing it into vinegar; and this is now called, even by those who previously could not conceive of a plant without root, stem, and leaves, the "Vinegar-plant."

The history of the plant is involved in great obscurity, some saying that it came from the West Indies, while others assert that it was brought to this country by the captain of a ship from South America. Whatever be the history of individual specimens, the history of the species is simple enough. When a little stale vinegar, or, as Schleiden says, "the expressed juice of currant," is left for a few days exposed in the open air, bodies are produced in it, in the form of a muddy film or sediment, and these gradually attract each other, and form a gelatinous-like mass. Every one is acquainted with the appearance of the soft dirty-white mass which is formed in the bottoms of empty wine-bottles; this is, if not identical with, at least very similar to, the Vinegar-plant. In connexion with its history and habitat, I may state that a friend of mine in Glasgow, who formerly dealt extensively in vinegar, informed me that the plant had been familiar to him for many years, and that he always observed it in vinegar which contained a large per centage of saccharine matter, while pure acetic acid was free from it. Nor are these developments confined to acetous and saccharine solutions; Dr. Pereira discovered similar forms in many fluids, particularly in empyreumatic succinate of ammonia. An interesting article on the subject was communicated by him to the "Pharmaceutical Journal," vol. vii. The following note on "Mycoderma," in "Lindley's Medical and Economic Botany," bears out this statement:—"It is probable that the flocculent matter which forms in various infusions when they become 'motherly,' and which bears this name, is only the mycelium of *Mucor*, *Penicillium*, and other Fungals of a similar nature." I have no doubt then of its being a native of Britain.

When first brought conspicuously before the scientific world, the idea was entertained by some that it was the *Tremella nostic* of Linnæus, a plant found, but rarely, on commons near London; which idea Mr. Lloyd proves, in an able article in "The Phytologist," to be incorrect. Some time after, in the same journal, Mr. Bloxam writes to the following effect:—"About two years ago I enquired of the Rev. M. A. Berkeley, what this really was, and found that he considered it a form of *Penicillium crustaceum*, which is described in the 'English Flora.'" Dr. Lindley, in his admirable work,* before quoted, describes it as a form of *Penicillium glaucum*, of Greville. As the mass occurs it is no easy matter to determine its species, or even genus; and it is likely to afford debating room for some time to come. Undoubtedly

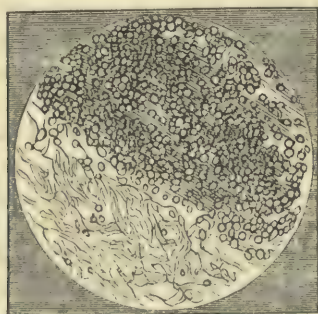
* Published in 1849.

when left in a dry place, it speedily becomes covered with a forest of luxuriant green mould, which might ingeniously be supposed to be the spore stalks, which, when in the fluid, had no opportunity of developing themselves, rushing into existence in the new element. Whether the green mould was really a portion of, or a parasite on, the Vinegar-plant, is a problem to solve.

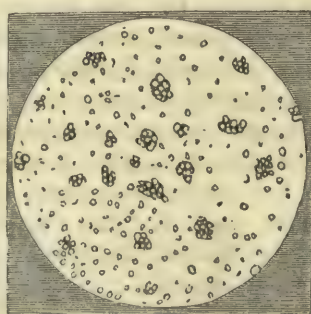
The plant in question is a gelatinous body somewhat resembling leather which has been long steeped in water; is tough, and in the progress of growth divides into layers by a transverse separation. The length of time required to change syrup into vinegar by its agency varies from five to six, or even eight, weeks. Professor Balfour found that when the syrup was prepared from white sugar, the time required was nearly twice as long as when a mixture of nearly equal quantities of raw sugar and molasses was employed; the same fact has come under my own observation, clearly proving that the grape sugar in the latter case accelerated the acetous fermentation. He also proved the identity of the mass with ordinary moulds, by placing particles obtained from dry bodies into the fluid, which in the course of time produced vinegar, at the same time being developed into the gelatinous mass described. The same experiment was repeated with like success by myself.

The absence of properly developed spores is the chief obstacle to the determination of the species, and moreover affords a proof that the plant is not in its proper element. On submitting a portion of the mass to the microscope, a quantity of entangled cellular tissue is discovered formed by the union and agglutination of the mycelium of the myriads of minute plants which make up the whole, and corresponding with the tissue known as *dadaelenchyma*. Rounded cells resembling spores were also observed, sometimes occurring singly, but generally in clusters as represented in Fig. 1. On expressing a small quantity of the fluid the same spore-like bodies were found

1.

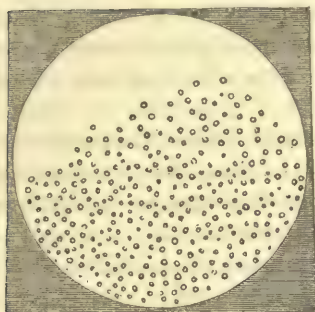


2.



in it; Fig. 2. In the sediment thrown down after fermentation, these spores, perfect or abortive, were also found, but in this case they were free from each other; Fig. 3. Besides these forms, another more marked was discovered, which, to my mind, assumed the appearance of a portion of perfect fructification. On separating the two layers which constituted one of the thin

3.



4.



strata of the plant, a clavate mass of these spores was discovered with a distinct stipes, accompanied by globular and irregular-shaped masses, from all of which radiated minute filaments, as seen in Fig. 4. Dr. Greville informed me that he was of opinion that these were not true spores, and so far as he knew, no naturalist had ever discovered *perfect* spores in a fungus which was in an unnatural position. I do not desire to question the opinion of such an authority on the subject, but would modestly suggest that if they were not *perfect* spores, they were at least an approximation to them, and tend to throw some further light on the generic position of the plant. It has already been stated that Berkeley, Greville, and Lindley are of opinion that the Vinegar-plant is the mycelium of a *Penicillium*, probably *P. glaucum*. It is with much pleasure then that I attempt to confirm, by observation, their opinion; especially as it appears that none of these gentlemen have seen the spores in the plant. I may thus hope to be of a little service in adding to the weight of evidence in favour of their judgment.

I take the liberty of copying the capital descriptions of the three genera of moulds, from Dr. Lindley's book, already referred to:—

"*MUCOR Micheli*.—Microscopic, cobwebby masses, consisting of tubular septate threads, bearing at the end a roundish membranaceous spore case which bursts when plunged into water.

M. mucedo, L.—(Common Mouldiness,) Cobweb-like; the fertile threads simple; spores and spore cases, blackish. *Habitat*—fruit, paste, and preserves."

5.



Fig. 5 is a small portion of this mould, obtained from raspberry jam.

"*ASPERGILLUS Micheli*.—Microscopic, cobweb-like strata, producing threads, at the ends of which grow spores arranged in rows, the rows themselves being collected in pencils or tufts.

A. glaucus, Link.—(Blue mouldiness,) cobweb-like strata white, the fertile threads simple capitate, spores loosely packed, becoming *glaucus*. *Habitat*—decaying substances everywhere. Cheese."

Fig. 6 represents the plant as obtained from a rotten Turnip.

"*PENICILLIUM*, *Link.*—Microscopic, cobweb-like or motherly flocculent masses, producing simple globose spores, disposed in patches about the pencil-shaped ends of septate fertile threads.



P. glaucum, *Grev.*—(The Vinegar-plant,) mycelium forming a close, tough, crust-like, or leathery web; branches entangled and bifid; spores verdigris green. *Habitat*—on decaying bodies, and in fluids in a state of acetification."

Fig. 7 is a drawing of a *Penicillium*, which I take to be *P. glaucum*, found in a quantity of stale paste. On reading the above descriptions, and comparing with them and the sketches of the plants indicated, that of the Vinegar-plant, Fig. 4, it will be no difficult task to point out its generic position. The genus *Mucor*, though Lindley says that it is



frequently the cause of fluids becoming 'motherly, is not the parent of the Vinegar-plant, as no indication of a membranaceous sac for the spores could be traced. Neither can we lay it to the credit of the genus *Aspergillus*, the rows of spores forming a brush-like head are sufficient to exempt it; though it is plain that the plant found in the succinate of ammonia by Dr. Pereira, is a perfect *Aspergillus*. In the genus *Penicillium*, we find that the stipes, instead of coming to an abrupt head terminated by a mass of spores as in the two former genera, branches out in the form of a tree, and on these branches the spores are deposited in clusters. This branching precludes the possibility of a determinable form of head: according

as the angle of the branches is greater or smaller, and as the spores are thickly or sparingly deposited on them, so will it approach to the rounded or oblong form. This may in some measure account for the difference observed in the form of the masses in Fig. 4. Again, the circumstance in which a plant is placed may influence the form of its branches. We know that a tree will increase most on the side next the stream. In the case of the Vinegar-plant the fact of the very abundance of nutriment, may have caused a lengthening and attenuation of the branches, in the same manner as the quantity of nourishment, aqueous and aerial, supplied to the Elms in the Crystal Palace, gave them an unwonted vigour.

I then look upon the clavate mass of spores in Fig. 4 as the nearest approach to perfect fructification yet observed in the Vinegar-plant, and as being identical with, or at least very similar to, the *Penicillium glaucum*, Fig. 7;

and am of opinion that the variations observed are to be charged more to the circumstances in which it is found, than to a generic or even specific difference.

It is by no means clear, however, that the Vinegar-plant is invariably produced by the same genus. Dr. Balfour found that the common blue mould produced it; and it is well known that blue mould is the *Aspergillus glaucus*; indeed we might almost conceive of the mass being formed by as many individuals and species as the grassy sward we tread on. That the gelatinous body is formed by the interlacing of the root-like mycelium there can be very little doubt, as will be seen on referring to the plant as grown in the dry air, Fig. 7, where it will be seen that the tubes lie very closely over each other. Suppose then these tubes produced in greater quantity, they would naturally form a soft spongy mass, which, if placed in a solution nearly identical with it in chemical composition, would become consolidated by the agglutination of the individual tubes, and thus form the tough leathery Vinegar-plant.

Talking of its chemical composition, Professor Penny, of Glasgow, suggested to me the idea of testing the plant for nitrogen, a gas well known to be abundantly present in Fungi of the larger kinds; and which, if present, must have been obtained from the air, being wanting in the syrup. On burning the plant I was *almost* convinced of its presence by smell, but could not be certain. If Dr. Penny should find by experiment that nitrogen was really present in any quantity, it will go far to explode the notion that the organic constituents of plants are obtained essentially from the soil. In the case of the larger Fungi, as *Agarics*, which contain a large quantity of nitrogen, the soil in which they grow may be naturally looked to as its source, seeing that many of them only grow on dung-heaps or rich pastures.

Edinburgh.

BOTANICAL STROLLS IN THE NEIGHBOURHOOD OF PLYMOUTH.

NO. IV.

ON June 18th., in company with two friends totally unacquainted with botany, but in whom I awakened an interest in the study as we proceeded, I strolled to Wembury, a scattered village lying near the sea, between Plymouth Sound and the mouth of the Yealm; but on this occasion did not go far beyond Langdon Hall, the seat of C. B. Calmady, Esq. As previously remarked, it is my desire to name only such plants as I have not met with before during my rambles in 1851; so that it must not be supposed that the few enumerated are all that were observed; and I must beg excuse if any are mentioned more than once, as memory may fail me.

Our route from Plymouth lay over Catdown, where I found *Hieracium Pilosella*, (Mouse-ear Hawkweed;) *Sedum acre*, (Yellow Stonecrop, or Wall

Pepper,) and *Salvia verbenaca*, (English Clary.) The three plants just mentioned grow on dry banks, walls, and hedges by the roadside. The first is very pretty, with its lemon-coloured florets tinged externally with a streak of vermilion. This, and the *H. umbellatum*, are the only representatives of this extensive and variable genus which I meet with in this neighbourhood. The latter is not included in Mr. Hannaford's "Flora Tottoniensis" *Query*.—Has he overlooked it? Of the Wall Pepper, suffice it to remark that, growing as it does almost on the bare limestone, around which it thickly clusters, it is an interesting object, with its fleshy leaves and golden stars. The Clary is common on our cliffs, but is not so frequently met with inland.

At Catdown we took boat, and crossed over to Hooe, a small village skirting the lake. In the lanes were noticed the following, which, being all common plants, I deem it sufficient merely to name:—*Holcus lanatus*, *Hypochaeris radicata*, *Poa pratensis*, *Galium Mollugo*, *G. cruciatum*, *Heracleum Sphondylium*, *Epilobium montanum*, *Veronica officinalis*, *Tamus communis*, *Rosa canina*. We have now arrived at the road which, turning off at a right angle, leads to Bovisand. We do not descend here, but cross some fields, where we find *Lychnis vespertina*, (White Campion,) a plant located in many spots in this neighbourhood, but not common, and *Geranium dissectum*. We are again in the road, and approaching our destination. In the crannies of old hedges constructed of earth and small stones, *Cotyledon Umbilicus* is plentiful, so much so, that I doubt not some of your northern untravelled readers would be as much surprised and delighted at the abundance of this plant which they would meet with in the genial west, as we who are familiar with it should feel on being introduced into the living presence of the various lovely alpine species which adorn their hills and dales. The Honeysuckle was here perfuming the way, and the red flaunting *Papaver Rhæas* next met our view.

Arrived at Langdon Hall, we found on the grounds of this estate *Sedum anglicum*, *Rhinanthus Crista-galli*, *Lathyrus pratensis*, and *Hypericum humifusum*.

On the homeward route I saw in addition *Parietaria officinalis* and *Stellaria graminea*.

On July 7th., I scrambled over the limestone heaps in Catdown Quarry, a spot abounding with plants, although not very promising to the unpractised. The following have not, I think, been recorded before in these papers:—*Fœniculum vulgare*, (Wild Fennel,) very abundant, and of large stature, *Origanum vulgare*, (Marjoram;) *Linaria supina*, in a spot remote from where it has been found in former years, but it grows only on the outskirts of this quarry; *Reseda lutea*; *Vicia hirsuta*; *Apium graveolens*, (Celery;) *Verbascum Thapsus*, (Moth Mullein;) *Diploxys tenuifolia*, plentiful; *Erythræa Centaurium*; *Hypericum perforatum*; *Sedum reflexum*.

On July 29th., found on the Hooe, Plymouth, and the surrounding cliffs, *Triticum repens*; *Betonica officinalis*, (Betony;) *Carlina vulgaris*; *Ononis antiquorum*, (Spinous Rest-harrow.) *Query*.—Is this the true *O. antiquorum*? I doubt it much, believing it to be merely a spinous variety of *Ononis arvensis*.

Ligustrum vulgare, (Privet;) *Linum angustifolium*; *Daucus maritimus*; *Crithmum maritimum*, (Samphire;) *Beta maritima*, (Sea Beet;) *Melilotus officinalis*, (Melilot;) *Trisetum flavescens*; *Cynosurus echinatus*, (Dog's-tail Grass;) *Alopecurus* (forget the species;) *Polygonum aviculare*; *Senebiera Coronopus*; this plant, as well as its congener, *C. didyma*, is plentiful on waste ground in this neighbourhood, emitting a rank smell, and very pungent to the taste; *Potentilla reptans*; *Reseda luteola*; *Atriplex rosea*.

On August 5th., I took a long stroll from Plymouth to Bovisand, and thence by the beach to Wembury, Newton, and Noss. My way again lay over Catdown, on the borders of Plymouth, and I observed in flower there *Pastinaca sativa*, (Parsnep,) and *Diplotaxis muralis*. Having been ferried over to Turnchapel, I passed over Staddon Heights, a ramble over which ground I have described in an earlier paper—and only noted here *Arctium Lappa* and *Anagallis arvensis*, as strangers to my list. I searched about at Bovisand for something to record, and succeeded in meeting with *Medicago sativa*, *Pulicaria dysenterica*, and *Koniga maritima*. Hence I proceeded by the winding-path used by the coast guardsmen to Wembury, where in a corn-field I found *Linaria Elatine*, and, much to my delight, *Papaver hybridum*, but unfortunately it was past bloom, being indeed quite withered. There was a large stock of it; and however much its presence may be distasteful to the farmer, I trust to get a good supply of it next season, for I have long sought for it in vain. On the sands I met with that variety of *Polygonum aviculare*, described by Babington as “a form with very short internodes and leaves, small flowers, and much-branched stems,” as well as two or three of the genus *Atriplex*. Ascending again to the fields, I remark *Euphorbia helioscopia*, *E. exiqua*, *Polygonum convolvulus*, and *Sonchus arvensis*. A wet spot was embroidered with *Samolus Valerandi*; and then came a heathy bit of ground with the furze bushes covered with *Cuscuta Europæa*. Not to dilate, I conclude with the mere names of the other plants noticed during this ramble:—*Eupatorium cannabinum*, *Helminthia echinoides*, *Calamintha officinalis*, *Alsine rubra*, *Torilis anthriscus*, *Æthusa cynapium*.

Here terminated my botanical strolls of 1851. I have been purposely concise in this communication, as the opportunity of penning it has occurred so long “after date.”

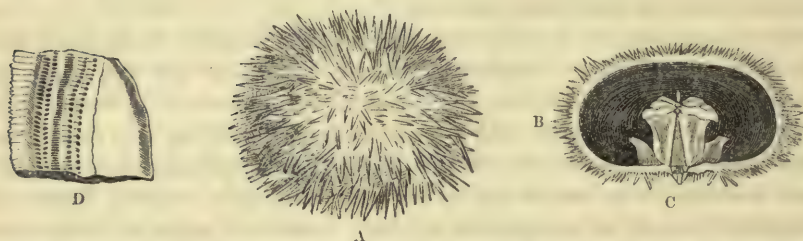
ISAIAH W. N. KEYS.

Plymouth, February 11th., 1852.

MARINE ANIMALS.

ECHINODERMATA, (*THE ECHINUS*)

BY O. S. ROUND, ESQ.



A, Exterior view of *Echinus Miliaris*, natural size.—B, A section of the same, shewing the lantern and teeth C.—D, Interior of a piece of shell of *Echinus*, shewing the perforations through which the Suckers work.

THIS genus of Marine Animals, with the shells of which almost every one is familiar, is the *Echinus*, or Sea-urchin; so called from the universal presence of spines, in more or less proportion of production over the whole surface of the shell. This shell is composed of five pieces, that is by perceptible sutures, but to give the number of actual plates of which it is composed, would be an almost impossible, probably a most fruitless task. They are certainly, ordinarily speaking, several hundreds in number, and exhibit in the progressive growth of the creature the most wonderful arrangement. The shape we know is a flattened, although somewhat irregular sphere, inasmuch as where the larger orifice exists, which is, in fact, the mouth, the arch is suddenly contracted, but this figure is found to be composed, upon close examination, of an infinite number of pieces of calcarious matter, differing, or rather increasing or decreasing in size as the shape of the shell enlarges or lessens; and hence at the largest part the plates will be largest. Between each of these plates, the substance, of which the animal itself consists, is protruded, and this substance is constantly collecting around the edges of these plates, earthy and calcarious matter, which being added on, as it were, in regular progression over the whole shell, this covering regularly increases in size with the growth of the inhabitant, without in the smallest degree losing its elegant shape and beautiful appearance; ornamented and embossed as it is with patterns like the most beautiful artificial raised work, incomparable, however of course, with any human productions.

In many of the species, particularly those in common collections, known as sea-eggs, and which are the skeletons of the *Echinus*, the spines are so minute as to be hardly discernible between the plates; in some attaining several inches in length, and of a proportionate thickness; whilst in others, the resemblance to the common urchin, or hedgehog is very striking; and in one

kind the plates being so closely placed, and so hard that there is, in fact on the upper part, no means by which spines could protrude themselves; their presence will be detected around the mouth on the lower or concave portion, as if the denial of egress on one portion was made up by its production on another.

These spines when living, (if I may use the expression,) are discovered to be coated by a secreting membrane, which is the agent of their growth, and not only do they thus grow, but it has been found that where a spine was bitten off by some fish of prey, probably, having seized, but failed to swallow the Echinus itself, the imperfect end was reproduced, and in some specimens a longitudinal section will shew the point at which such repair took place; and in others not only once but twice in the same spine. Being quite isolated from the body as they are, it was not until the external secreting membrane was discovered that the source of their growth was known; but being so known, sections of them shew distinctly the layers of increase, in the same manner as trees exhibit their rings of woody fibre. In most of the Echinis, each of the five ground divisions of the shell is grooved, and furnished with a row of tubercles; both being regulated in graduation of size by the shape of the shell itself, and thus are formed ten rows of ambulacral plates, between which tubular suckers or retractile feet are protruded at will; and these feet are of course regulated by and connected with the animal's internal economy.

That the Echinus becomes the prey of other marine animals, is established by the fact that great numbers have been found in the stomachs of fishes; but whilst we record this, it must not be forgotten that they themselves are furnished with a most complicated and curious feeding apparatus, in which, in my present paper, I can only notice that the number five is observed, as in the shell, in a remarkable manner. The plates around the mouth are moveable, and within them there are five teeth, which work upon five jaws, provided with five processes, and attached to five long and slender levers; and thus the number five, as I have before observed, is remarkably carried out; and this Pentanumeral apparatus forming the mouth, was thought by Aristotle to resemble a lantern, and is still known by that name.

As my space will not now allow me to enter into details upon this most singular division of Marine Animals, I shall only further observe that the Echinus, to which I have devoted this paper, is only one of its types; and therefore without observing the strict order pursued by naturalists, I shall take each in its turn as it occurs to me, at the same time not so wholly discarding all method as to be silent on the actual place which science has assigned them amongst the inhabitants of the ocean.

Inert and helpless as these ball-shaped beings naturally appear, every one of the spines which protrudes from them, arises from a tubercle having a socket, and capable of motion in every direction; and the suckers to which I have before alluded, aided by these spines, which are in fact so many hundred, or, in some cases, thousand, legs, enable the animal to transport

itself in any direction with the greatest ease, and by means of the suckers to ascend masses of rock or coral for the purpose of obtaining its prey, or of even burying itself in the sand to elude pursuit; and thus the most apparently defenceless, and, to our ideas, perhaps, at first sight, the most imperfectly developed animal, displays to the eye of the anatomist, the most admirable and superior organization, though differing in actual structure from the reptilea or mammalia.

(To be continued.)

SEA-NETTLES.

BY O. S. ROUND, ESQ.

It has been well said of mariners, whose business is in the "great waters," that they see the wonders of the Creator in the deep; and if this was the experience of the inspired Psalmist, when so little—so infinitely little—was known of those wonders, how much more true must it be in these enlightened days, when, ignorant as ordinary men still are of the inhabitants of the vast ocean, and much as every year shews us to justify the extension of this assertion to even those known as scientific, no one who has the least observation, and who has glided over the glassy surface of the sea on a clear sun-light day, or contemplated the sublime prospect in the calm moon-light, can fail to be filled with wonder and admiration at the very magnitude of the thought, which the bare idea of the unknown depths, and what may there be hid, must inspire. Of the Fishes, (*Pisces*,) we probably have a tolerably general knowledge, at all events of the different genera; for, although in remote islands hitherto unobserved kinds are discovered, these are usually new species, not genera, although a case lately occurred in which a new fish, if I mistake not, of almost a new genus, was observed at Malta; and yet, attention being drawn to the subject, it was found to have been familiar to the fishermen of Southampton Water for years; a sad reflexion on our ichthyologists! Fishes too, as a mass, inhabit regions only comparatively near to land, the *Cetacea*, the Sharks, and a few others only, being found on the boundless watery waste. But sail where we will, leave thousands of miles on all sides of us, the ocean is still peopled by so vast a multitude of beings, that the least acquaintance with them fills one's soul with the most admiring awe.

Of these the most numerous are the *Acalephæ*, or Sea-nettles, including the *Medusæ*, and those brilliant denizens of the flood that gleam in such countless myriads in the track of the good ship, as she bears us on towards the haven where we would be. Familiar to the inhabitants of every beach where they are cast on the shore, mere apparent masses of jelly, yet enquire more closely into their organization, and a field of wonder opens to us almost too vast to receive at once. These beautiful creatures vary exceedingly in size; some are alone discernible by the aid of a powerful microscope, others

again are of considerable magnitude, and the forms which they display are no less various. The *Medusæ* float on the surface by means of a mushroom-shaped gelatinous disc, assisted by the powers of dilation and contraction possessed by the animal itself: the *Medusa Rhizostoma* is a familiar instance of this. Others are mere spheres, furnished with tentacular or prehensile fibres; some are like the fin of a fish, but those best known are the Girdle of Venus, (*Cestum Veneris*), an animal of several feet in length, and emitting a phosphorescent light of great brilliancy by night, and the most lovely hues by day. It is apparently nothing more than a gelatinous ribband, but exhibits upon inspection the most delicate conformation. The other is the Portuguese Man-of-war, (*Physalia pelagica*), which, with its beautiful purple crest, is the delight of landmen, as the soft air catches this natural and bright-hued sail. By many the *Nautilus* has been confounded with this beautiful creature; but the *Nautilus* belongs to a much higher grade of marine animals, which perhaps I may have to speak of hereafter.

When we consider the delicate formation of this beautiful race of God's creatures, we shall be struck with wonder how, amidst the boisterous waves of the mighty deep they float, or even sport unharmed, when man, in all his strength and pride, is unable to cope with it for a single hour; nor will this wonder lessen upon a more intimate acquaintance with their structure, and the species of food upon which they subsist, and how they obtain it. Of these I intend to speak hereafter, and can only indulge at present a humble hope that the young lover of nature, who scarcely yet dares to call himself a "Naturalist," may be induced to journey with me on my voyage.

(To be continued.)

ON SOME OF THE MODERN GEOLOGICAL CHANGES EXHIBITED IN THE NEIGHBOURHOOD OF GLASGOW.

BY W. FERGUSON, ESQ.

THE surface of our earth has exhibited during its existence many different features. Since the "Beginning," when God created it, who shall say how many ages and epochs have rolled—ages and epochs so extended as to lead even an inspired writer to apply to the hills of our world, the term "Everlasting." Geology, in its province as explicating the past and present condition of the material portion of the earth, has already thrown much light on these past periods, and taught us something of their various appearances. It has lifted the veil from off the various systems which one after the other have each been once "the present." It has exhibited to us the Silurian System, with its dynasty of shells and cuttlefishes; the Old Red Sandstone Period, with its wondrous families of mail-clad fishes; the Carboniferous Era, with its characteristic palms, and forests of reeds and rushes; the various

members of the Secondary System, with their terrible reptiles, realizing the leviathan of Job; and the Tertiary Formations, with their mammoth quadrupeds, in reading the mere description of which we are forcibly reminded of the behemoth of the same sacred writer.

It is not my intention, however, to dwell upon the ancient aspects of nature. There are a series of changes which have taken place at a period far enough remote according to man's limited chronology, but at a time, the date of which, as compared with that of any of the epochs I have already mentioned, may be emphatically said to be only "of yesterday." It is some of these I would now attempt to describe. My attention was more specially directed lately to the modern changes of surface on the Frith of Clyde, by the following circumstance:—Visiting my friend Dr. Lorrain one evening, he put into my hand a large and brilliant specimen of *Trochus ziziphanius*. The shell is quite a common one, and I remarked it was so. "Ah! but where was that one found, think you," said he; "nine feet below the surface, in Sauchie-hall-Street!" And so it was. In digging a drain there, the workmen, after going down about four feet, came to a bed of pure peat, one foot thick, and below that they dug four feet through beds of stratified sand, containing shells. Mr. James Petus, a patient of Dr. Lorrain's, who was close beside the spot when they were found, attracted by the brilliancy of one, the outer coat of which had scaled off, preserved it, remarking "It would do for his doctor." He informed me that a good many more were seen, but no one thought them worth preserving. In one shovelful of sand thrown out, there were as many as five or six. We have thus here a portion of a deposit shewing that the sea, or at least an arm of it, at one time covered the spot now occupied by the upper level of Sauchie-hall-Street.

There are many other proofs of the same fact, some of which I will now detail, confining myself to those found on the Frith of Clyde. Commencing with the Island of Arran, we notice that the road from Brodick to Corrie, and so on round the north end of the island, occupies a flat and level, but not broad, space of ground, a little elevated above the level of the sea, and backed by a series of cliffs of considerable height, and the vertical faces of which are water-worn, and hollowed out into caves. The cliffs are of Sandstone, and the caves are due to the action of waves at one time beating against them. I visited the place, and obtained from the sides of a ditch, in what was then a field waving with corn, many specimens of shells. They are broken and worn; but when it is remembered that they were found at some distance from the sea, and at a much higher level than the sea ever reaches now, they are not without interest. In my note-book I find the following account of my finding these shells:—I looked for the ancient beach all along, but could not find a single shell. When we had passed Port-na-Claoch, and were still a mile or so north of Markland Point, I asked an old man who was working on the road whether he had ever seen any, as now, from the profuse vegetation, I could see none. He said he had often dug marl

when he crofted a bit there, and bade me look behind the first rock, which he said had "kepid the shells when the tide gaed out." "For," added he, "the sea has been over a' this, and up at the rocks yonder, for the auld road gaed aboon them." I did as he recommended, and in the first hollow, behind a mass of rock at the edge of a corn-field, found shells.

The same ancient beach is distinctly observable on the Island of Little Cumbrae, a little farther up the Firth. On one end of this island an ancient town is situated on the old beach. Here, as in Arran, the beach is flat and narrow, very little raised above the present level, and immediately flanked by cliffs rising abruptly from it.

As we advance farther up the Clyde, the same beach is seen on both sides. All along from Gourrock southwards, the road is formed upon it. In some places it is a mere shelf, but in others it attains considerable breadth, and it is backed by most picturesque cavern-hollowed cliffs. These may be seen very distinctly in the neighbourhood of Wemyss Bay. On the north side of the Clyde, between Helmsburgh and Dumbarton, the same sort of beach may be traced; and there too, where the soft strata of the Old Red Sandstone stand out in cliffs, on the upper side of the road, they are hollowed out into water-formed caves.

Three or four miles below Glasgow, and a mile or a mile and a half north from the bank of the river, is a place called Garscadden. In Gaelic, *Gar* means a Point, and *Scadden*, a Herring; and Macfarlane, in his "History of Renfrew," mentions this place as the Herring Yair; and there are some notices in the statistical account of Renfrew of certain ancient fishings at Renfrew Quay. The conformation of the country down there is corroborative of the traditions of the sea having formerly stood at a higher level than it does now. Indeed, in the flat grounds near Renfrew, various deposits, containing shells of species not now living in our estuary, have been found.

I shall now state the result of observations which have been made in and around Glasgow itself.

In Glasgow Green may be noticed two triangles, one about eleven, and the other about twenty-six feet above the level of the sea. The Green did not always present the appearance it does now. In 1810, a slight swell in the river, or a heavy shower, laid the Low Green under water. A portion of it, known then as the Calton Green, was so soft and irregular, and the ground so swampy from numerous springs, that more than one-half of it was cut up into open drains or ditches. The banks of the river contiguous to Peat Bog, were rugged and so washed down with springs, that they were comparatively useless; and the inequalities on the surface of the High Green were very considerable. Provost's Haugh, or Flesher's Haugh was separated from the High Green and King's Park, by a large ditch, or goit, and so strong were the springs which issued from the banks, that numerous drains were necessary to carry off the water to the river.

But keeping in view the improvements which have been made on the

green, it is yet sufficiently obvious that the flat space along the river below the High Green and Flesher's Haugh, may have been a beach; and the flat expanse of King's Park and the High Green sloping up to Monteith Row, another. The second of these levels gives us the line of London-Street and Trongate, and may be traced in this way a considerable distance. Mr. Robert Chambers describes the terraces of Glasgow in these words:—

“If we make a cross movement from the river bank at the Broomielaw, the following ancient beaches will be found:—First, the street of Broomielaw, a piece of ancient haugh ten feet above high-water mark; second, another flat at Anduston, at about thirty feet; third, a terrace sloping up to the skirts of Garnet Hill, somewhat irregular, but exhibiting some entire pieces, (for example the site of St. Matthew's Free Church,) and attaining an extreme height of somewhat more than eighty feet. A similar cross movement in the eastern suburbs, starting at the green and passing up to the lodge at the house of refuge, gives a precise repetition of these gradations. The Mill-Street Factory is there seated upon the sixty-four—seventy feet level. In the central part of the city we pass at once from the twenty-six alluvium, (for example at George Square,) up a steep slope to an irregular height, not less than one hundred feet, remarkable for a capping of diluvium, containing a number of far transported boulders. But in the line of the High Street, the University Buildings clearly sit upon the same terrace which we find at Dowanhill and the Mill-Street Factory. On the right bank of the Molendmar Burn, opposite Craig Park, there is a fine piece of terrace about one hundred and fifty yards in length, and perhaps fifty above the tiny stream. This is approximately about one hundred and forty-four feet above the level of the sea.”

(To be continued.)

NOTES ON THE BIRDS OF IONA.

BY HENRY D. GRAHAM, ESQ.

[I HAVE much pleasure in forwarding you the accompanying notes, addressed to me by my esteemed correspondent Mr. Graham. Few observers are better situated than that gentleman for noticing the occurrence and habits of some of the rarer sea-fowl; and as he has, for a considerable time, paid close attention to ornithological pursuits, under the most favourable circumstances, it is likely his letters may prove interesting to many of your readers. I have only to add that Mr. Graham is quite an enthusiast, and the observing the habits of sea-birds especially affords him untiring delight. “I love,” he says, “to pursue the aquatic tribes upon their own blue element, and to ‘hunt a field for health unbought.’ I have spent days and nights in ‘solitary places,’ watching them with my dog and gun, and I look upon the wild screaming races that people the rocks, the caverns, and the sea-waves, as the companions of some of my happiest hours.”

The following notes on the Stormy Petrel and the Red-legged Crow, which I select from his correspondence, will best introduce Mr. Graham to the readers of "The Naturalist."—*R. G., Southcroft, Govan, Glasgow.*]

THE STORM PETREL, (*Thalassidroma pelagica*.)

This interesting and most diminutive member of the great order of *Natatores*, visits our coasts in considerable numbers during the summer, for the purpose of incubation. On fine calm evenings at this time of the year, after the smooth surface of the deep has put off the fiery glow imparted by the setting sun, and begins to assume the dull, leaden tint of night, then the little Petrel may be seen scaring along upon the face of the sea; now he darts past the fisher's boat as it is rowing along upon its homeward course; is seen for a moment as he flits round the lagging oars, and instantly disappears among the increasing gloom of approaching night. His motions are so rapid, his appearance so sudden, and he looks so extremely diminutive, that it is only a quick eye that will detect his approach at all, and it would be almost impossible for the homeward bound sea-fowl shooter to molest him.

The Petrel breeds upon many of the little wild unfrequented islands which surround Iona and Staffa; the latter itself is one station. But upon these islands I have found their nests made in such very dissimilar positions, that it would make one suppose they belonged to distinct species. The first place that I fell in with them was on a little islet about a league south of Iona, named Soay. It is high and rocky, with grassy banks on its summit, which feed about a dozen sheep: these banks, which are about eighty feet above the level of the sea, are composed of a soft buttery kind of soil, which cuts, with a spade, like new cheese; and it is in deep burrows formed in this muddy soil that the Petrels make their nest. These banks are perforated by numbers of holes, having the size and appearance of rabbit burrows. If one of these is carefully cut out with a spade, two, or sometimes three, very small apertures, no larger than mouse holes, are discovered opening out of this large entrance, which serves as a lobby to as many distinct Petrel residences. By continuing to dig up the course of these minute galleries, which extend from three to four feet in length, and are at a considerable depth below the surface, we at last come to a small nest composed of a little dried grass, generally of the *sea pink*, loosely laid together, containing a single white egg; the egg is quite warm, and by searching a little further, the bird is sure to be found. It allows itself to be caught and taken up without resistance, only giving a faint squeak, and then ejects about a teaspoonful of thick yellow oil from its bill; the quantity and quality of this decreases as the season advances, and latterly ceases altogether: this is probably accounted for by the birds falling off in condition during the time of sitting.

The direction of the galleries may be ascertained by thrusting up a ramrod, for they take frequent and abrupt windings; a large block of the soil

may then be cut out with a spade; and the soil, though soft, is so tenacious that these blocks may all be returned to their places again; and the burrow not being destroyed, is sometimes tenanted again next season. The birds come to their holes in the first week in June; the eggs are laid by the first week in July; and on the 13th. of October I have found the young very recently hatched. I once kept a pair and succeeded in rearing one; the other one was killed by accident. They would take small pieces of fish very readily, and were more active at night than during the day. The young one when fully fledged differed from the adult merely in being of a rustier black, and having an ill-defined white mark across the wing, formed by the pale tips of the secondaries. Both the young and the old ones, when confined in a basket or bag, escape at the smallest aperture, climbing up the sides like mice, in doing which they use their hooked bills to pull themselves up with: it seems to be of more service to them than their claws.

As might be expected from their great length of wing they cannot spring up quickly into the air; when one is allowed to escape from the hand, he runs rapidly along the ground for several yards with the wings in motion before he can get fairly started; but if he meets with a declivity, he throws himself off and swoops away to his ocean home. Within the limited space of a room their wings are quite useless.

The Petrel is also found breeding at Staffa, and at least one of the Treshinish Islands, though I have no doubt they frequent all of them. Here their nesting-places are very different from those at Soay, for they make their nests under the large stones on the beach. These beaches are composed of blocks of basalt, about the size of a hat, and are considerably raised above the sea level. They seem never to have been much exposed to the action of the waves, for these large stones are rugged and angular, consequently lying loosely together, easily allowing the mouse-like Petrel to penetrate the numerous interstices, and to circulate freely a long way below the surface, just as we see a wren, chased by a dog, taking refuge in a dry-stone dike; and while the dog keeps watching the hole at which he entered, in a moment the Wren hops out of the dike a gun-shot further on, and chirps a feeble insult at his pursuer. It would be impossible ever to discover the Petrel in such a situation as this, were it not for its betraying itself, which it does in a very peculiar manner, especially about dusk, in the evening, or at sunrise. If you happen to be upon one of these wild solitary spots, you hear a most peculiar buzzing noise, not unlike that of a spinning wheel, or a goat-sucker. It is not continuous, for at intervals of about ten seconds it is broken by a sharp *click*. You soon find this music issues from beneath your feet: guided by the sound you commence removing the heavy stones; you are encouraged in your labour by hearing the sound nearer and more distinct; sometimes it ceases, then re-commences; the noise and rolling of the rocks seem to provoke the subterranean musician to renewed efforts, until with a vigorous effort the last great stone is rooted out, and the

mystery is laid bare. We see a little black object shuffling off, its small white egg lying upon a few blades of dry grass to protect it from the hard rock. The bird scarcely makes an effort to escape; as if dazzled by the broad glare of day-light, or stunned by the depth of its misfortune, it lies passively in the hand of its captor, gives a faint squeak, and drops a pellucid tear, in the shape of a globule of oil, from its beak.

I have compared specimens taken from these two different breeding-places, but I am unable to detect any difference between them. The Soay bird is always silent: I never heard him indulge in these curious melodies. Both have a very powerful odour—a musky kind of smell, which adheres to the skins years after they are stuffed, and to everything they come in contact with. I have perceived it when walking upon the beaches at Carn-burg Island, and at Soay it needs no terrier to inform you which holes are inhabited.

THE RED-LEGGED CROW, (*Fregilus graculus*.)

We have three pairs of these birds constantly resident upon the island, and there are several other pairs which make their nests upon the adjacent rocky shores of Mull. The Iona birds breed every season upon the island, and usually roost during the rest of the year somewhere in the vicinity of their old nest; but, though they rear a young brood every season, these are sent off as soon as fledged to seek for other shores; and the same limited number only remains with us.

The Chough is a very pleasing bird; his movements are active and sprightly; he is always in the highest spirits, bustling about, calling and responding to his mate. His voice somewhat resembles the Jackdaw's, but it is much more cheerful and lively, having a clear ringing sound. Chow! Chow! Chow! he cries till all the distant caves resound with his own name.

These birds always maintain a friendly footing with the Jackdaws, associating with them in their feeding excursions, and sometimes accompanying them home. The huge square tower of St. Columba's venerable shrine, grizzled with age, moss-grown and roofless, still braves the shocks of time and the fury of the elements, and affords secure shelter to a colony of Jackdaws among its time-worn shafts and decaying windows. The belfry walls, which once vibrated to the merry-peeling chimes, or the sadly-tolling knell, now only awakens to the chattering voices of *Daws*. But, however this may be, the Jackdaws look upon the old tower as their exclusive property; and if any audacious Hooded Crow or Kestrel ventures to alight upon it, in a moment he is hustled off by the whole community, perhaps with the loss of some of his tail feathers. One pair of Red-legs is, however, allowed by these jealous republicans to rear their family in the midst of them; and also at other times of the year they are welcome guests to roost upon their tower. This nest was built last year in the ledge of a small window on the very summit of the tower upon the inside: though quite out of reach the outer sticks could be seen from below. We waited patiently hoping that some of

the young family, when nearly fledged, would fall over; but I suppose they were destroyed by some days of severe wind and rain which we had about that time, for the old ones deserted the nest afterwards. We however picked up the fragments of some of the egg shells which had fallen after the eggs were hatched: they were of a light brownish tint, spotted with dark brown.

Another nest is in the mouth of a cave which can only be entered at low water. The nest is inaccessible, and visible from below, but not from above. If very much wished for it might perhaps be reached with the help of a rope. We left it unmolested last year in hopes of getting the young, in which I was disappointed by being absent from the island just at the time they were fledged. This nest is a very old establishment, and has been occupied many years. Nearly every evening, and at all times of the year, the old pair come to roost in its neighbourhood. I have sometimes watched them making themselves comfortable for the night; after trying several, they at last select a sheltered inaccessible ledge overhanging the sea, upon which they lie down with their legs tucked under them.

These birds are at all times tame, but at the breeding season they are very bold. They do not take much notice of a visitor until very closely intruded upon, and then become very vociferous, flying over his head, and frequently alighting about forty yards distant, or less. Their brilliant coral bills and legs are then very conspicuous, as they contrast with the glossy blackness of the plumage.

Sometimes on a fine calm day the Red-legged Crow amuses itself by soaring up to a great height, and then sailing round and round in circles, after the manner of the Eagle. One fine spring morning I witnessed a pair doing this when I was accompanied by a veteran sportsman, who was almost deceived by them, taking them for Eagles, until they began to call, which at once betrayed them; and when they descended, the matter was put beyond a doubt by shooting one. The natives call these birds St. Columba's bird; no doubt because it used to breed upon the cathedral in greater numbers formerly, when those ruins were less disturbed by steam-boat visitors.

Iona, 1852.

LOCAL JOTTINGS.—No. 3.

DORCHESTER—DORSETSHIRE.

BY J. GARLAND, ESQ.

The Hoopoe, (Upupa Epops.)—The celebrated naturalist, Gilbert White, in his "History of Selborne," mentions the circumstance of a pair of these pretty birds frequenting his garden, but they did not breed there; now I am credibly informed that a pair built their nest and bred for several years,

about 1839, in the grounds adjoining Pensylvania Castle, Portland; unfortunately, however, they were both afterwards shot, and one, I understand, is now in the possession of Captain Manning, of Portland Castle.

The Fieldfare, (*Turdus pilaris*.)—I observed several of these birds in a turnip-field near this town on Monday, October 20th., which I imagine must be very early.

Cistus, (*Helianthemum vulgare*.)—This little plant is also met with, I learn, on the eastern side of Portland, near Pensylvania Castle.

Dorchester, January, 1852.

Miscellaneous Notices.

Note on a Black Rat.—During last week a Rat, which attracted curiosity, from its unusual appearance, was caught in Bristol cathedral. It was sent up to the Philosophical Institution, where, upon examination, it was found to be one of the Black English Rats, a race which is now nearly extinct, having been all but exterminated by the Rats now ordinarily met with, the species which is known as the Brown or Norway Rat, which is really, by the way, an Asiatic importation.—WELLS JOURNAL, December 13th., 1851; MICHAEL WESTCOTT.

Sagacity of a Rat.—I send you the following instance of sagacity in the Rat, in case you should deem it worthy of a place in your highly-interesting periodical:—In an out-house used for garden tools, I placed, for the purpose of procuring maggots, to feed some young Partridges, which I was rearing, several Rats which had been trapped. A few days afterwards, there was scarcely anything left of these Rats but their skins; their entrails having been entirely devoured by their living brethren. I then placed on the floor, near a Rat hole at one corner of the out-house, a candle prepared with arsenic: next morning the candle had disappeared, and I congratulated myself that *one*, at least, of these destructive vermin had taken more than was good for it. However, some weeks afterwards, finding that the Rats were still in the tool-house, and were working their way into the poultry house adjoining, I took up the floor of the former in order to lay it with broken glass and lime. In doing this, I found the place quite honey-combed underneath, with the runs of the vermin; and, at the very opposite corner from the one where I had placed the candle, a distance of three or four yards, I found the candle untasted; showing that the Rats must have dragged it that distance underground, and though, for some time previous, they could have had nothing to feed on but the refuse of the drains, they had the sagacity to discover that the candle was dangerous, and the self denial to abstain from devouring it. This is the more extraordinary, as I have not been in the habit of using poison to get rid of them.—C. M. O., Edinburgh, December, 1851.

Note on the Kowail, or Black Indian Cuckoo, (*Cuculus Indica*.)—The Kowail is a handsome bird; the plumage of the male is black and glossy as the Raven; the shape is elegant, the eye a brilliant scarlet. The female is larger, brown and black, regularly burred with white, and the whole breast speckled and spotted; the eye a rich crimson brown. These birds come in spring, with the lilac blossoms of the Ash, (*Melia Azedarachta*,) and the bursting leaves of the Sissoo, (*Dalbergia Sisso*.) They are seen about the gardens, and heard chattering to each other; but their song does not fill the groves with melody till March, when the Mango flowers, (*Mangifera Indica*,) load the air with perfume. The voice of the Kowail, the bird of the Indian poets, is most musical; the note is "cuckoo, cuckoo," but prolonged and repeated, and swelling as it goes up higher and louder; three or four birds singing together, like voices performing a catch or glee, till the quiet night and moonlight air ring with their music. The Black Cuckoo, for there are three or four different species of *Cuculus* found in our woods, lays its egg in the nest of the Common Crow; the eggs of both are bluish green, speckled with brown, and the same size and shape. The Crows make excellent foster-parents, unwearied in their exertions to feed their greedy

nestlings. Like many Indian birds, they fly long before they can feed themselves, and they are always shivering their wings and clamouring for food. I have had a young one which eat everything, and never seemed satisfied—bread and boiled rice, a soft pulpy fruit, raw meat, etc., and as soon as it could fly, it flew off to its friends the Crows. The Crows, always in pairs, came regularly with their two nestlings, a Cuckoo and a Crow, to eat boiled rice on the verandah, or in the room, if the plate were put near the door. The young Crow looked clumsy and dingy beside the handsome, sprightly young Cuckoo, who shivered his bronzed and glistening wings, and gaping wide his crimson throat, always took precedence and was fed first. The fruit or berry they are so fond of is the Scarlet Gourd, (*Momordica monodelpha*,) which creeps all over the hedges; and when the berries of the Asoy trees, (*Uraria longifolia*,) one of the Custard apple tribe, are ripe, the Cuckoos and Golden Orioles, and the Small Hornbill, (*Buceros*,) come in numbers to feed upon them. I have not been able to find out where the Black Cuckoo goes in autumn, but after August or September its joyous note is rarely heard, but when I do I shall let you know.—Extract from the letter of a friend to R. P. C., October 1st., 1851.

The Cuckoo, (*Cuculus canorus*,) has this year been remarkably abundant in the vicinity of Black Moor, near Leeds—it was heard on the 16th. of April. The country people about here repeat an old couplet, running—

The Cuckoo is a pretty bird; and sings as *she* flies,
She brings us good tidings, but tells us no lies.

It is also superstitiously considered unlucky to be without money on first hearing its welcome notes. Eight Cuckoos were seen assembled in a single oak tree the second week in July; probably old birds commencing their migratory movements.—JNO: DIXON, 7, Copenhagen-Street, Leeds, November 3rd., 1851.

The Swallow, (*Hirundo rustica*,)—In the "Leeds Intelligencer," for November 13th., 1847, I find the following:—"Rara Avis. A Swallow was observed flying about the Leeds Station, of the Leeds and Bradford Railway, on Sunday last, the 7th.—a very rare occurrence so late in the year." October 4th., 1849, another was observed about the Railway Station, Starbeck; the day cold and wet. This solitary lingerer attracted the attention of a carter, who knocked it down with his hat. It was brought to me, but only lived a couple of hours. April 15th., 1851, Swallows appeared at Roundhay.—Idem.

Note on Swallows.—The last of the Hirundines that I have seen this season, were four House Martins (*Hirundo urtica*,) and one Swallow, (*H. rustica*,) which were flying round a church tower, on the 25th. of October. Having two brothers in the island of Madeira, one of them, who has been there three or four years, informs me that in November, December, and January, there are a great number of Swallows and Swifts, the latter, however, are of a larger sort than our Swift.—F. H. D'ARCY, Lymington, Hants., December 6th., 1851.

Mr. John Cope, of Abbots Bromley, near Stafford, has forwarded to me the following curious statement:—"Three Chimney Swallows were found, to all appearance dead, between the glass and brickwork of a window that had been stopped up for some years, in the house occupied by Mr. Spooner, of Abbots Bromley. The bricklayer who pulled down the brickwork took them into the house, by the fire; in a short time they showed signs of life, two of them soon became able to fly, and escaped, and were seen no more; the other did not recover, and very soon died."—F. O. MORRIS, Nafferton, March, 1852.

Spoonbill, (*Platalea leucorodia*,) in *Hampshire*.—There was a Spoonbill shot on the marshes here the other day.—F. H. D'ARCY, Lymington, Hants., December 6th., 1851.

Early Blackbird's Nest, (*Turdus merula*,)—A friend in Essex, tells me that at Southend, in that county, there was a Blackbird's nest found with one egg in it, in the middle of January last; to remove any doubt about its being addled, the bird was frightened off the nest.—Idem.

Colour of Irides in the Red-necked Grebe, (*Podiceps rubricollis*,)—In reply to a request respecting the colour of irides in the Red-necked Grebe, I copy the following memorandum:—1837, December 27th., shot a female Red-necked Grebe from a boat, after a short and sharp chase, though it dived so quickly, as to escape many shots fired from a very short distance; it still retained many of its summer feathers scattered over the head, neck, and breast. Eyes, *dark*

hazel, lower mandible, yellow, legs dusky; the stomach contained a fifteen-spined stickleback, and was well filled with its own feathers. Several of those Grebes have come to hand from time to time, but this appears the only one where the colour of the irides was particularly noted at the time. Last April I had the pleasure of watching a pair in full summer plumage, diving around and close to the rocks, the colour of their necks shewing very bright, as the sun shone upon it.—CLEMENT JACKSON, East Looe, December 20th., 1851.

Puffin, (*Fratercula arctica*), in winter.—January, 1846. A Puffin was picked up dead on the beach, quite fresh and in good feather, apparently a young bird of last summer; beak, pretty fully developed, and of the usual orange and blue; head and back, black; cheeks below the eyes, gray; above and in front, sooty; legs, pale greenish yellow. One was found on the beach, putrid, in March last, probably an early summer migrant.—Idem.

Predatory habit of the Turkey.—Some few years since, we sat an old Turkey hen on twenty duck eggs, and as I was passing by her nest one day, in the course of incubation, I observed her devouring an egg which was just outside the nest. On examination, it was found that she had been feasting very plentifully upon her charge, as there were but eight eggs left, and four of which she despatched in a few days afterwards. Thinking that hunger might have been the cause of her acting so unnaturally, food was continually placed near her after she had eaten sixteen of the eggs; this prevented the remaining four from molestation, and which were ultimately hatched by her.—MICHAEL WESTCOTT, Wells, December 5th., 1851.

A Hen turned Mouse killer.—Last week my attention was attracted towards a common barn fowl, which was reaching up to a hole in a wall, and pecking at it very earnestly. When I was within about ten yards of the Hen, a common Mouse jumped out of the hole, and ran off at full speed, and away went the Hen after him. The fugitive was soon run down, and a sharp pinch, inflicted by his two-legged pursuer, made him squeak for mercy; then darting between the Hen's legs, he ran across the road, and hid himself in a large tuft of grass under the wall. The Hen's sense of smell not being sufficiently acute to direct her in the chase, and not seeing exactly the spot he entered, she lost him for a time; but never was there a spaniel, pointer, or any other dog, more active to start the game of which it might be in pursuit, than was the Hen to discover the hiding-place of poor mouse; she ran about close to where he was, picking and scratching the grass with a determination not to be defeated. Having at last espied the little lurker, she pulled him out, and actually held him in her bill, knocking him several times against the ground, until he was quite dead. She then let him drop, walked round him two or three times, and then as if to be satisfied that he was dead, she inflicted another blow which exposed his intestines, and walked away very leisurely.—Idem.

Egyptian Goose, (*Anser Egyptiaca*).—On December 22nd., 1851, I purchased of a poulterer in the Plymouth market a fine specimen of the Egyptian Goose, which was shot in the neighbourhood of Launceston, Cornwall, and sent to Plymouth with some other wild-fowl for sale. There is not the slightest indication in the look of this bird to lead one to suppose that it had ever been kept in confinement. Its bill, legs, and plumage are quite perfect: the stomach contained nothing but sand.—JOHN GATCOMBE.

White Rook.—In the month of October last, I frequently saw in the marshes near Tottenham, two Rooks, one of which was entirely white, and the other piebald. They appeared to be on good terms with their black brethren.—S. H. CARTER, Bruce Grove House, Tottenham, Nov., 1851.

Early appearance of Fieldfares, (*Turdus pilaris*).—Fieldfares have made their appearance unusually early this season, for I saw a flock near my residence on the 9th. of September last, and on the 11th. of the same month, I again saw about twelve or thirteen.—Idem.

Bullfinch, (*Pyrrhula vulgaris*).—I noticed, a few days since, a *white* male specimen, shot in this neighbourhood, in the possession of a taxidermist of this town. The back was slightly tinged with blue, and the breast with red.—S. HANNAFORD, JUN., Totnes, May 11th., 1851.

Pugnacity of the Missel Thrush, (*Turdus viscivorus*).—I was witness some few weeks since to an encounter between a pair of these birds, which have a nest in an orchard adjoining the Priory at Totnes, and a Jackdaw that had pitched on the tree to procure materials for his

nest, which he was building in the church tower. The moment he alighted, both male and female rushed at him, and a regular battle ensued, which lasted for some minutes, when the Jackdaw finding himself over-matched, bolted. I frequently see Magpies pursued by these birds from tree to tree, and they generally compel them to leave the neighbourhood.—*Idem*.

An Adder, (Peliu Berus,) with two heads.—A young Adder with two distinct heads was found a few miles from hence on the 9th. of October last, and was exhibited in the neighbourhood for a month or two shut up in a miserable bottle. I had the pleasure of examining it on the 27th., when it was quite lively, both pairs of eyes bright, and the tongues frequently and rapidly protruded, either both at once or singly; one head sometimes looked upwards, whilst the other was downwards, or they were moved in opposite directions horizontally. On turning it out, and allowing it fair play on the table, I observed that the right head was often laid over the left, when quiet, but in progression, they were side by side, and the right projected a trifle forward. Its colour appeared dark brown, as seen by candle-light, with the usual markings distinct; length, six or seven inches. A similar specimen was killed here four or five summers ago, with both heads and necks distinct, which I saw in a bottle of spirits a few hours afterwards.—CLEMENT JACKSON, East Looe, December 20th., 1851.

Occurrence of the Black Fish, (Centrolophus pompilus,) at Redcar.—A specimen of this remarkably rare fish was found this day near First Water East, Redcar. It measured thirteen inches in length, and four inches and a half in depth. None of the fishermen remember having seen one here before. According to Yarrell it is a small specimen; and only two others are recorded as having occurred in England.—D. FERGUSON, Redcar, March 13th., 1852.

The Crab, (Cancer Pagurus.)—Mr. Ferguson's notice of the Crab with three Oysters attached to its carapace, vol. i. page 46, induces me to offer a few explanatory remarks on this occurrence. That the Crab does change its shell admits of little doubt. We have the testimony of many eminent naturalists who have witnessed this singularity, together with the fact that specimens, devoid of shelly covering, have occasionally found their way into the fishermen's creels or pots. They are seldom brought to market in this state, but are cast overboard, being considered watery and insipid. In some parts of America, soft crabs are esteemed a delicacy. If we examine minutely the anatomical structure of this shelly covering, it will convince us that a frequent change is necessary for the full development of the body. This takes place several times in the course of a year in young specimens, the growth at this period proceeding rapidly. On approaching maturity, it only takes place at long intervals, affording ample time for the full development of any testaceous body which may be attached. Mr. Ferguson's Crab must have been an adult specimen; the spat, or spawn of the Oyster would in the course of twelve months become as large as a crown-piece; after which the dimensions increase more slowly, while the shelly matter is increasing in thickness. Mr. Couch, in one of his interesting communications to the "Magazine of Natural History," states he has found Oysters on the Crab two inches and a half in diameter. Several fine specimens with this singularity are deposited in the British Museum. It is said the Crab is much attached to its native haunts. Many have been marked and deposited at considerable distances, and after some time had elapsed, were again captured in their old quarters. They occasionally attain a large size, as we may see from the many examples deposited in local Museums. The largest I ever saw is at Walton Hall, the seat of Charles Waterton, Esq., the indefatigable and unrivalled taxidermist, dissected into sixty-six pieces, previous to mounting. Much has been written on the natural history of the Crab, but we are still in the dark on many interesting points. It is to be hoped our friends on the coast will fall into the views of "The Naturalist," and communicate such information as may occasionally reward their researches. Natural History appears to have received a new impulse; the numerous advocates for its further extension are daily on the increase; and we may look for many interesting and important results; rewarding those who are devoting their leisure hours to this delightful study, which cannot fail to exalt our ideas above the ordinary level, and teach us to appreciate more fully the wonderful dispensations of an all-wise Creator.

Nature, a mother, kind alike to all,
Still grants her bliss at labour's earnest call.

JNO: DIXON, 7, Copenhagen-Street, Leeds, November 3rd., 1851.

Proceedings of Societies.

Natural History Society of Glasgow.—The ordinary meeting of this Society was held on the 6th. of January, when there was a full attendance of members.

MR. ROGER HENNEDY read a very interesting paper, entitled, "Contributions to the Natural History of Clydesdale, from the Flora and Fauna of Gourock." Mr. Hennedy, after detailing the circumstances which led him to draw up his paper, went on to say,—“To shew the necessity of such lists as I have drawn up here, however imperfectly, it will only be necessary to refer to those already published, which will be found in every respect sadly deficient and incorrect. On referring, for instance, to Turton's "Manual of Land and Fresh-Water Shells," second edition, by J. E. Grey, we find that the writer complains, and it must be admitted with good reason, of the imperfect materials at his disposal for the preparation of good tables, relative to the general distribution of the British species. When such complaints are made by men of science, more particularly by those engaged in describing the geographical distribution of plants and animals, how can we admit the accuracy of their general conclusions, or have faith in the soundness of deductions derived from such insufficient data?"

In carrying out these remarks, and for the sake of example, Mr. Hennedy took notice of an excellent paper by Mr. John Gray, read by Mr. J. P. Fraser before the Philosophical Society last session, in which it was stated, that the error of representing Scotland as deficient in many insects, which Scotch naturalists know to be quite common in this country, is habitually committed by English entomologists." He continued, by saying, "for a similar error in regard to conchology, allow me again to refer to Gray's "Turton," wherein the writer enumerates, from the published lists and notes of others, only thirty-one species of land and fresh-water shells as inhabiting Scotland, whereas I believe it may be stated with certainty, that members of this Society alone could furnish more than double this number. Similar deficiencies will occur, I have no doubt, to most of the gentlemen present, in regard to other departments of natural science."

Mr. Hennedy stated that the division of the *Algæ* formed the most complete, and that so far as he knew there had hitherto been no lists published of those indigenous to this coast, except a few species noticed in Hopkirk's "Flora Glottiana." He mentioned "that the more rare filiform *Algæ* are entirely absent from the list he had the pleasure to lay before the Society, and that the deficiency might be accounted for by the proximity of the locality to the fresh waters of the Clyde. The comparative proportion of plants found in this locality, when we take them by the series as divided in Mr. W. H. Harvey's "Manual," will be found as follows:—Of *Melanospermeæ*, about one-third; of *Rhodosperrmeæ*, one-fifth; of *Chlorosperrmeæ*, one-third; but in consequence of the *Rhodosperrmeæ* principally inhabiting deep water, there can be little doubt that their numbers will yet be increased." He mentioned one which he had kept out of his list, namely *Lichinia pygmeæ*; it grows very plentifully on rocks by the sea-side, forming a snug refuge for *Kellia rubra*, and several of the small mollusks.

After some very interesting remarks on the flowering plants, ferns, and mosses of the district, Mr. Hennedy proceeded to take notice of the shells. Having made a few introductory observations, he went on to say, "from the absence, in this district, of rivers, or canals, we are deficient in the *Alasmodon*, *Anodon*, etc.; on the other hand in Sylvan species we are tolerably rich, among the *Helices* we have two very beautiful species in great abundance, namely *H. Aculeata* and *H. Camellata*. In the spring they are found upon the previous year's decaying leaves, and are so minute, that it is necessary for their discovery to lift the leaves and turn them over in the hand. By this means they are easily seen. The species of *Succinea*, called *Pfeifferi* is very plentiful, and is always found on grass and stones in ditches and hollows. *Limnæus truncatulus* is abundant, those found on the hills being very small and clean, are often mistaken for a new species. In the heat of summer they disappear, burying themselves in the mud. That little beauty, *Carychium minimum*, is also plentiful; it is found on *Marchantia* in damp places, and this is probably what it feeds upon. *Pupa umbilicata* is found amongst moss and heath on projecting rocks close by the sea-side, where the spray of the sea must often fall on them. Along with them is the *Clausilia nigrescens*, which is frequently found on the bare rocks within a yard of high water.

"With regard to those shells which inhabit salt water, it will almost be superfluous to mention them. I may notice, however, the following, lest by any means they have been overlooked:—*Velutina levigata*, *Sigaretus*, or, as it is now called, *Lamellaria tentaculata*. This is found in May beneath stones, where it probably comes at that season to deposit its ova. *Patella testudinalis*, or, as I understand it is now called, *Acmæa tessellata*, *Fissurella Nouchina*, *Modiola discrepans* is found nestling in tufts of *Corallina officinalis*, and *M. discors* may be found in great abundance east ashore, and inhabiting the tunic of a species of *Ascidia*, *Kellia rubra*, and *Scalaria communis*. *Xylophaga dorsalis* was found last year when Gourcock quay was repairing. It inhabited the piles, and along with *Limnoria terebrans* had completely destroyed the portion under water. Timber, thoroughly perforated with these pests, is often cast ashore in the vicinity of Gourcock. *Pholas crispata* occurs plentifully in clay at the Castle, and in several places farther down. *Aplysia depilans* is often found when the retreating tide has left it in a rocky pool." Mr. Hemmely illustrated his lists, which were very full, with a beautiful collection of elegantly-mounted *Algæ*, land and fresh-water shells, besides several marine species.

DR. LORRAIN, the Vice-President, read a paper on *Nanina vitrinoides*, and exhibited specimens. His notes are as follows:—About three years ago, our worthy Chairman, Mr. Gourlie, presented me with a living specimen of the *Nanina vitrinoides*, and the notes were made from observation, during the time I had it confined in a glass shade. When in my possession it added nearly half a volution to the shell. I fed it entirely on lettuce leaves and cabbage. The shell resembles in every respect the European genus *Zonites*, but the animal is very different. When stretched in crawling, it is very long and slender. The posterior extremity terminates very unlike any of the *Helices*; it is split horizontally, with a part turned up like a tail, and at the root of this horn-like tail is a small hole. On each side of the mouth of the shell, the mantle is elongated in two pointed lobes; these are in constant motion, contracting and expanding, in close contact with the surface of the shell, and often covering the umbilicus, but always more or less grasping the side of the umbilical cavity. The *Nanina* seems to lick or clean its shell like a cat dressing her fur. The animal is ash-coloured, the mantle yellowish, becoming darker as it extends into the elongated lobes; the foot is gray, with an edging of a lighter colour. My *Nanina* was very lively in the evenings, but was usually quiet during the day, except when it was damped, or had water poured over it. It seemed to have some difficulty in drawing itself entirely into the shell.

The *Nanina* was discovered by Mr. Benson.

The Querist.

On killing Insects for the Cabinet.—I am reminded by a notice in "The Naturalist," for January, of some facts I have for some time intended communicating to you, relative to killing insects for specimens. I had previously been in the habit of employing either bruised laurel leaves, or hot water; but on one occasion last summer, when I could not conveniently procure either of these, I thought of employing the vapour of chloroform. I accordingly put about three drops into an eight ounce bottle, in which were three large Lepidoptera, which it killed in about fifteen seconds, or perhaps less. I have, since that time, almost constantly used it for insects of all kinds, with perfect success. Its effects are nearly instantaneous, and it does not in the least interfere with their setting up, or their preservation. For the future I never intend going out "insect hunting," without a small quantity, which I may put drop by drop into my store bottle. It is especially useful for Lepidoptera, as it acts upon them so speedily that they are completely prevented from fluttering about, and so injuring their wings; its action on *Hymenoptera* and *Coleoptera* is no less remarkable, and in the case of the latter especially, will completely prevent the more tedious "hot water" process.—*W. B. B., February 3rd., 1852.*

Water-Lilies, *Nymphæa alba* and *Nuphar lutea* occur in various places near Aberdeen. They are abundant near the Corbie Loch, about four miles north of Aberdeen; and they are also found in the Loch of Drum, about thirteen miles west of Aberdeen.—*J. W.*

THE RUFFED, OR MC'QUEEN'S BUSTARD,
(*OTIS MC'QUEENII*.)

WE have been induced to give a coloured plate of this very interesting addition to the list of British birds, from there being, as far as we are aware, no figure of it except in Gould's expensive work, which is not accessible to many of our readers. The plate is taken from an admirable drawing made from the bird itself by Miss Barker, a young lady who kindly painted the bird for Mr. Graham, of York, to whom we are indebted for the loan of the picture.

The bird was shot at Kirton Lindsey, in Lincolnshire, on the 7th. of October, 1847, by Mr. G. Hansley, who parted with it to Mr. Alfred Roberts, of Brigg, from whom it was purchased by E. T. Higgins, Esq., of York. The bird is now in the Rudston collection of British Birds, in the Museum of the Yorkshire Philosophical Society.

Description:—The bill is dark lead-colour, compressed at the tip, depressed at the base; irides, yellow; the head and throat, rufous, mottled with black, with long loose feathers of a slate-colour, hanging over the breast. Chin, white; back of the neck, white, minutely mottled with brown; the sides of the neck are ornamented with a range of feathers two inches long, about two-thirds of the upper portion black, the lower part white. The back and wing coverts, rufous, mottled with black, with zigzag bars of black across; the quill feathers black, extending to the end of the tail when closed; under parts, white; legs, lead-colour. Length, twenty-three inches; expanse of wings, three feet eight inches; weight thirty-six ounces.

Although this is the only specimen of this Bustard which is known to have occurred in this country, yet its having evidently come as a voluntary visitor to our shores, gives it a decided claim to a place in the British list. The coloured figure which we now give, will enable any one readily to recognise the bird, should it ever come under his notice. Let us hope that if such an occurrence should take place, "The Naturalist" may be the medium of making the interesting fact known to the scientific world.

B. R. M.

NOTES ON THE ROOK, (*CORVUS FRUGILEGUS*.)

BY J. MC'INTOSH, ESQ.

THE benefits that man derives from the labour of this bird, by destroying his insect enemies, particularly the cockchafer, (*Melolontha vulgaris*), and the wire-worm, (*Elatér obscurus*), are immense; yet, however strange it may appear, it is too true that there is not, with the exception of the House Sparrow, (*Passer domesticus*), any other bird in the whole list of British Ornithology that he perseveres more determinedly in destroying. In the olden time, there is no question that public opinion was entirely against them,

and that their destruction was regular and systematic, which may be fairly drawn from the following entry, among certain others, concerning the parish of Alderley, in Cheshire, in 1598, the fourteenth year of good Queen Bess's reign:—"We find there is no Crow-nest in the parish o payne, that one be bought by the charge of the parish." It is true that we are authorized and justified in diminishing such creatures as are found to be injurious to our property, yet under this head we are daily committing so many serious mistakes from want of a proper knowledge of their habits, that ere long some of the most useful and interesting inhabitants of our woods and fields will be extirpated. It is true that the Rook eats grain, walnuts, and potatoes, but they are necessaries of life to which he never resorts except when his supply of animal food is shortened. After the grain has germinated, he has nothing more to do with it, except in scratching it up in search of insects, which are hidden from the human eye; yet while engaged in this very important operation, the husbandman, in nine cases out of ten, drives him away, or deals death and destruction around him.

Many of us are well satisfied of the usefulness of these interesting and useful co-labourers, whilst others are not aware of their value; for the benefit of such, I shall endeavour in these notes to give some interesting remarks; and the husbandman who values an abundant harvest will, I hope, extend his protection to these feathered artizans, which they so richly merit. To those who may be inclined to doubt these remarks, let them compare the orchards, fields, and gardens where the destruction of birds is to any extent tolerated, with those where they are unmolested, and they will find that in the absence of their persecuted friends, their fruits and grain are in the jaws of a far more deadly enemy, which they can neither shoot nor trap. Kalin has remarked that, after a great destruction amongst birds in the Northern States of America, for the paltry reward of three pence per dozen, in the year 1749, they experienced a complete loss in their grain and grass crops; and the celebrated Wilson justly remarks in respect to the Blackbird, (*Turdus merula*,) that the good should be balanced against the damage they have done; the service they render the husbandman in spring is immense, by destroying millions of insects and their larvæ, which they devour as their natural food.

But to our subject, the Rook. Natural instinct seems to direct the Rook to this species of food, namely insects, while man is unconscious of the circumstance: thus we often see flocks of these birds busily engaged in our parks, meadows, and other grass lands, picking up food, which, upon inspection, is not visible on the surface. From many and attentive observations, I assert, and that without fear of contradiction by those acquainted with their habits, that their employment in such cases is in perforating the surface with their bills, which are well adapted for the purpose, in search of the larvæ of those insects which are at the same time busily engaged in devouring the roots of the herbage. By some husbandmen, however, they are regularly

permitted to accompany the ploughman, and collect the various insects which the operations of ploughing and harrowing bring to the surface, and of which they devour *more* than of the grain which is scattered around them: this is easily ascertained, and that by dissection. I do not mean to assert that their crops will be found void of grain; on the contrary; but what grain therein may be found would not be the tenth of what would have been consumed by the insects which the Rook devours in their several stages.

As soon as the operation of seed-time is over, and no insects are to be found in the arable districts, the Rooks migrate, taking with them their young, spending most of the summer months on heaths, moors, and high down lands, where they are scantily supplied with the fruit of *Vaccinium myrtillus*, *V. Vitis-idea*, and some few others, as well as with several species of *Helix* and *Limax*, and various insects. Towards the end of harvest they return to us, visiting again our stubble, potato, and turnip-fields, at which time they attack the insect world in their imago or perfect state, before they have had time to deposit their eggs; the larvæ are also diligently searched for; yet for all this close attention and valuable assistance to the husbandman, they are greatly persecuted; to such I would say, bear the following beautiful lines in mind:—

“Take not away the life you cannot give,
For all things have an equal right to live.”

DRYDEN.

Again, the sole employment of the Rook in the spring months is in search of insect food, and a small gray slug which in some seasons is found abundantly on the young blades of grass and autumnal-sown grain, as wheat and rye; and the havoc that a flock makes at this season of the year is of the utmost benefit to mankind, for each insect destroyed is the means of ridding our crops of thousands. An American journal says that every Rook requires at least one pound of food per week, and nine-tenths of their food consists of worms and insects. One hundred Rooks then, in one season, destroy four thousand seven hundred and eighty pounds of worms, insects, and their larvæ. In a number of the “Sussex Express” for 1844, the following fact in favour of the Rook is stated:—“On Thursday last, a great number of old Rooks were destroyed on the estate of William Oliver, Esq., when one old bird was killed having in its crop nineteen grub-worms and seventeen wire-worms.” A correspondent of the “Agricultural Gazette” for 1846, says, “If Rooks are as mischievous as your correspondent asserts, how is it at harvest-time we have anything left in the neighbourhood? Whilst I write, hundreds of Rooks are being constantly fed by the old ones almost within gun-shot of the table at which I sit. What are these young ones fed with? I have no ripe corn, no potatoes; what are they fed with? They are fed with countless thousands of grubs, picked out of the earth by these invaluable birds.”

Another correspondent of the same journal for 1844, says, “In the neighbourhood of my native place is a rookery, in which it is estimated that

there are ten thousand Rooks, that one pound of food per week is a very moderate allowance for each bird, and that nine-tenths of their food consists of worms and insects. Here then, if my data be correct, there is the enormous quantity of four hundred and sixty-eight thousand pounds, or two hundred and nine tons of worms, insects, and their larvæ destroyed by one single Rookery." From this valuable extract, some idea may be formed of the utility of the Rook to mankind. The same writer says, "I will mention another proof of the utility of the Rook. A flight of *locusts* visited Craven, and they were so numerous as to create considerable alarm among the farmers of the district. They were soon, however, relieved from their anxiety, for the *Rooks* flocked in from all quarters by thousands and tens of thousands, and devoured them so greedily, that they were all destroyed in a very short time." Amongst our notes we find a newspaper scrap bearing the date of 1841, in which it is stated that the vegetation on the mountain of Skiddaw was nearly all devoured by an enormous quantity of caterpillars, and that the farmers of the neighbourhood became alarmed for the safety of their corn crops, etc., but the Rooks found them out, and in a short time put an end to their fears. Bradley relates an instance of the inhabitants of a certain village destroying all the birds around them, by setting a price upon their heads. The consequence the following year was, that the whole of their crops were attacked by insects, and that they were glad to offer a greater reward for their (the birds') protection; and we are told that a whole district in Germany was nearly deprived of its corn harvest by having destroyed their *Rooks*. When frosts and snows prevent their getting into the open fields for snails, slugs, and insects, they have recourse to our highways for their scanty meal, which has thus been described by the poet Cowper:—

"The very rooks and daws forsake the fields,
Where neither grub, nor root, nor earth-nut, now
Repay their labour more; and, perched aloft
By the wayside, or stalking in the path,
Lean pensioners upon the traveller's track,
Pick up their nauseous dole, tho' sweet to them,
Of voided pulse or half-digested grain."

We learn from a French journal for 1845, that the Prefect of the Lower Seine gave effect to the French law enabling magistrates to prohibit the *destruction of Crows, Rooks*, and other small birds. It is to be hoped that we English will take a leaf out of the Frenchman's book. What a pity it is that this French law cannot assume the shape of *Paris gloves* or *Lyons silk*, for in that case it would soon be followed! Yet we find that during the never-to-be-forgotten French Revolution, the country people, among other causes of dissatisfaction with their superiors, alleged their being fond of having Rookeries near their houses. A mob of these misguided and ignorant people proceeded to the residence of the principal gentleman in their neighbourhood, dragged him from his house, and hung his body upon a gibbet, and then

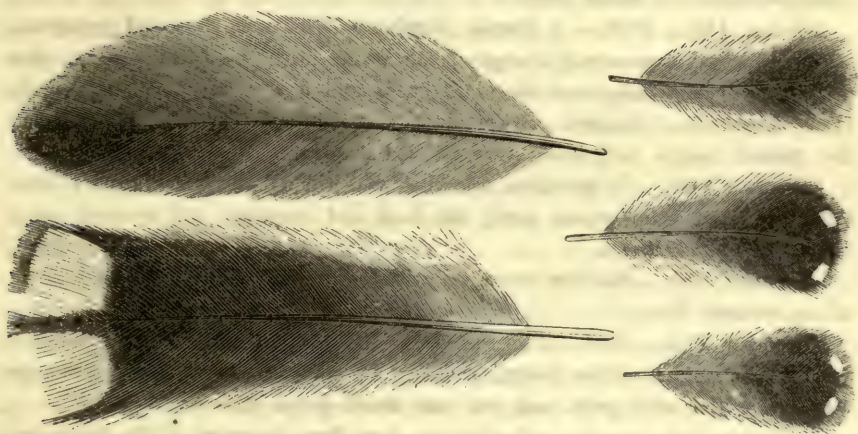
attacked the Rookery, shooting the Rooks amid loud acclamations!

Ignorant prejudices often take deep root, and are handed down from ancient to modern times. It therefore becomes the duty of the naturalist of the nineteenth century to point out these prejudices in their true colours; and I am sure that there is no right-thinking individual but who must be satisfied of the great services rendered to his fellow-creatures at least *ten* months out of the *twelve*, by the united and valuable aid of birds. That the services of the Rook alone have of late years attracted considerable attention in England, on the part of those who have in some measure been their greatest enemies, is apparent from the numerous enquiries which we almost weekly read of in the various periodicals of the day, wishing to know how they can induce the Rooks to return to the Rookery, from which they had been banished some ten years before. This fact itself is a most convincing proof of the utility of the *Rook*.

(To be continued.)

OBSERVATIONS ON THE AUTUMNAL AND VERNAL MOULTINGS OF THE COLYMBUS GLACIALIS, (NORTHERN DIVER.)

BY MR. CLEMENT JACKSON.



Two top figures—Winter plumage. . . Three lower—Summer plumage.

WHILST recently reading Selby's "Description of the Divers," I was forcibly struck with the omission of any reference to the changes of plumage to which in common with their neighbours, they are regularly subject after attaining maturity; changes so complete as to destroy their identity, except to those well acquainted with them. He says, "*C. Glacialis* is a common winter visitant in its stages of immaturity on our northern coast, but adults rare, as out of twenty specimens examined only two were mature;" but the months

when obtained are not mentioned, and as his expression "when past the third year the plumage is perfected" may without further explanation tend to mislead, I thought a few observations, from a rough note book, might be acceptable to such readers of "The Naturalist" as have not an opportunity of examining for themselves the changes and habits of this beautiful species.

C. Glacialis is a regular visitant with us, arriving in October, and remaining through the winter until May, and sometimes June, when the adults have reproduced their splendid summer coat; but I regret to say since the introduction of percussion guns amongst the young fishermen they are becoming gradually scarcer, and as their reproduction is limited, will eventually become a matter of history.

On referring to Montagu's "Supplement," he describes a female commencing change in January; and I have met with it equally early, but shall confine myself to notes entered at the time of their occurrence, which are strictly correct, beginning with the autumnal change from the brilliant summer livery to the very plain garb of winter, when the young birds are, I believe, only distinguishable by the lighter gray edgings of the upper feathers, and perhaps inferiority of size, though it is very probable *C. Arcticus* may be confounded with it, at that period the plumage being described as similar; and doubtless the three species undergo like changes. I have never met with *C. Arcticus* to identify it, but have for many years suspected the smaller Loons to be that species in its winter dress.

October 14th., 1836.—A female Northern Diver was shot and preserved, which had just commenced change; some white feathers on the cheeks, chin and throat having displaced the dark ones, and a few gray scapulars made their appearance; the rest of the plumage as in summer. It only weighed five pounds and a half, being very starved and thin.

December 13th.—A specimen was shot which had the head and neck clean moulted of the plain winter garb; the back and scapulars still retained many of the summer feathers.

December 16th.—Another examined with a good glass still retained some of its summer livery.

November 27th., 1837.—Two Northern Divers were caught in a Salmon-net, both in perfect winter livery, probably a young pair, as the upper plumage was well edged with gray, and one was much larger than the other.

On paying their ransom, and releasing them from the grasp of the fisherman, who was unceremoniously dragging them along by their necks, they were set down on the beach at a considerable distance from the water, to which they made their way pretty rapidly by springing along on their half-opened wings and legs, somewhat like the elegant hop of a toad, but the larger one was more inclined to fight than fly, and vigorously pursued a hat purposely held to it down the beach. On reaching the water, they immediately dived, and rising at a safe distance from the beach, commenced arranging their ruffled plumage.

November 23rd., 1838.—Female Diver shot to-day in complete winter livery; edging of upper feathers, light gray.

November 4th., 1851.—An adult specimen shot to-day was deep in moult, and had most of the dark head and neck feathers displaced and replacing, giving those parts a very ragged appearance, but still retained great part of summer scapulars; back and wing coverts interspersed with many new dark gray feathers, edged a shade lighter, of the plain winter coat; it was starved and thin. Sex not noticed, but supposed a male from its size.

A pair were seen here on the 8th., and on examination with a good glass on the 17th., I could distinctly see they were both deep in moult, still retaining much of the summer back and scapulars. Observed a pair again with the glass on the 4th. of December, probably the same, and they appeared clean moulted; the throat and front of the neck very white, and the upper parts plain.

VERNAL CHANGE.

May 5th., 1837.—Observed a pair of Divers in summer livery.

June 8th.—Divers still here of course in all their brilliancy of summer plumage.

March 6th., 1838.—A male, weighing eleven pounds, was shot just commencing change; a few dark feathers only shewing on the nape, but new feathers appearing all over under the winter coat; three or four shore crabs, denuded of legs, were in the gullet and stomach.

April 15th.—Observed a pair apparently in complete summer livery.

May 15th., 1839.—Observed a Diver in complete summer livery.

June 4th.—Observed a Diver in complete summer livery.

February 2nd., 1840.—Observed Divers in pairs—plain winter livery.

May 4th.—Observed Divers in complete summer livery.

February 12th., 1841.—A large male Diver was shot to-day in plain winter livery.

April 28th.—Shot a male Diver, weighing twelve pounds, after a very smart chase with three boats, each firing as they came up. The summer livery was nearly complete, but markings very irregular from unequal growth of the feathers. When picked up it was endeavouring to disgorge a flat fish of which these birds devour great numbers, and of considerable size, pecking them for a long time on the surface of the water till of a fit consistence for swallowing, which seems then to be accomplished without difficulty.

Their usual fishing-ground here is over the sand, and about the mouth of the river, where they catch numbers of flat fish, etc., and shore crabs, the claws of which appear to be carefully picked off previous to swallowing.

During the period of both Vernal and Autumnal moult, these birds appear, when not fishing, to be constantly occupied in preening and arranging their plumage, frequently swimming round on their side, with one leg raised high out of the water to put the nether garments in order, and every now and

then raising themselves upright, and having a vigorous flutter; but the adults are very wary and discriminating, for, although they will often allow a boat-load of seaweed, or a man fishing, to pass very near them, the moment a gun is raised they dive and take good care to keep out of reach. A pair in beautiful summer livery remained here throughout May, but were too wary to be procured.

On the 6th. of June, 1837, I went in chase of a large Diver, which was leisurely swimming about amongst a lot of fishing-boats close in shore, and just as I came up one of them thinking it a wounded bird, was sculling with all his might, and a boy leaning over the bow trying to catch it, whilst the bird merely swam the faster till the boat was just upon it, then dived; and although so fearless of the fishermen would not let us approach within shot, making long dives, and flapping the wings on rising. At length flapping heavily along the surface for some distance, it rose high in the air, and continued flying very swiftly and vigorously for miles, appearing light and active as a Wild Duck on wing. After flying around some time, and alighting from whence it rose, dived a few times, got a star-fish or crab for supper, and whilst dissecting it took good care to keep out of reach.

Although both this species and the Red-throated Diver depend chiefly on their legs during winter, almost invariably diving to escape pursuit, they fly frequently and vigorously toward spring, particularly the latter, which makes off as freely as a Wild Duck.

The above instances, amongst many others which have occurred unrecorded, place the double moult of this species beyond a doubt, and I think satisfactorily account for the non-appearance of the adult summer plumage till May or June, when they migrate to their breeding stations.

East Looe, Cornwall, January, 1852.

ON THE CERE AND LEGS OF BIRDS.

BY THE REV. GEORGE SOWDEN.

IN examining the beautiful engravings in the "History of British Birds," by the Rev. F. O. Morris, I have been struck by what appeared to me a somewhat remarkable fact, namely, that with one exception, the Cere and Legs of the *Vulturidæ* and *Falconidæ* are of the same colour. For instance, in the Griffon Vulture the Cere is *bluish black*, so are the Legs; in the Osprey and in the Swallow-tailed Kite, both Cere and Legs are *blue*. In the Erne, Golden and Spotted Eagles, the Harriers, and others, both these parts are *yellow*; in the Orange-legged Hobby, they are deep *orange*. The two figures of the Egyptian Vulture exemplify what I state remarkably; in the older bird both Cere and Legs are light yellow, while the younger one has them of a kind of dark buff. But while the *Cere* thus generally corresponds with the Legs, this is far from being the case with the lower part

of the bill. In the Egyptian Vulture, Spotted Eagle, etc., the Legs are yellow, the bill black; in the Golden Eagle the Legs are yellow, the bill horn-colour; in the Jer-Falcon and Peregrine-Falcon, the legs are yellow and the bill blue. But the rule which I am noticing is orthodox in having its *exception* to confirm it; for in the Honey Buzzard, the Legs are yellow, and the Cere is blue.

I am so far interested in the matter that I should like to know, from those whose knowledge extends beyond *British Ornithology*, whether this really be a solitary exception, and whether my rule be imaginary or not. I confess it seems to me so far borne out, that I wonder it has not been noticed by Natural Historians, and I am not aware that it ever *has* been. An eminent ornithologist, to whom I have communicated these remarks, acknowledges that they are new to him, and it is by his recommendation that I now lay them before the consideration of the readers of "*The Naturalist*."

The ornithologist to whom I refer suggests as an explanation the probability that all the bare parts of the flesh would be of the same colour; but this is at least strikingly at variance with the more mature Egyptian Vulture, which has a bare skin of deep flesh-colour on the head, while the Legs are light yellow.

Stainland, Halifax, January 20th., 1852.

SEA-NETTLES.

BY O. S. ROUND, ESQ.

(*Continued from page 75.*)

THESE creatures occupy the fourth class of Acrite animals, according to the new and somewhat improved system, which has been applied by Professor Owen and other naturalists. They exhibit no distinct nervous system, but it is supposed that a neurine or nervous matter is diffused in a molecular condition throughout the body. The place of muscular fibre is supplied by contractile molecules. The alimentary apparatus presents nothing but cavities, and most of them appear to be but a repetition of similar parts, each capable of forming a perfect creature. At first sight what do we see, (I now speak of a larger specimen,) a mass of jelly-like substance; which, when taken from its native element, and allowed to dry, becomes at last a mass of mere filaments of transparent cellular matter, where grains represent pounds, and lines perhaps inches! The Acalephæ have been divided by naturalists into five groups: the *Pulmonigrada*, from the motion which their powers of expansion and contraction exhibits, and which bears some resemblance to expiration and inspiration; the *Ciliograda*, from the motion of certain *cilia*—or hair-like substances which cover the surface of the body; the *Physograda*, where the motion is regulated by one or more bladders; the *Cirrhigrada*, which boasts something like a skeleton, and resembles partially the *Pulmonigrada*;

and the *Diphyida*, which consist of two parts most delicately joined, and whose motion is produced by the contraction and expansion of the halves, which are constantly ejecting and imbibing circumambient fluid. The *Pulmonigrada* possess in common a gelatinous disc, which, however, upon a section being made, shews the variety of texture, nor is there any fibre apparent by which any motion in itself could be given to it. This disc has the shape of a mushroom, or a belt, which floats with its concave part downwards, and contains within it the body of the *Pulmonigrada*, which is very similar in its structure to the root of a plant, and from which numerous tentacula emanate, not unlike the leaves of the common Kale, with small plain leaflets pendant at the extremities.

In the *Rhizostoma* there is a double row of these leaves by which the food is collected and absorbed. The *Ciliograda* are of different forms; some being circular like a sphere, and others mere ribbon-like substances; but in all the ciliated bands are the means of locomotion; and it would appear that the animal has the most perfect control over their movements, as much as we have over a finger, or perhaps more; for the discontinuance, or sudden action of any of these cilia, as occasion may require, either promote or retard the action in the water, which may be regarded as more allied to vibration than actual motion, being very quick, and to our vision scarcely recognisable.

In some species these bands lie on the surface; in others they are between folds of membrane, which, at times, perfectly and entirely conceal them, and this is probably for their protection whilst the creature is inactive.

The agent employed in the motion of these numerous paddles is still a mystery, although it has been supposed that a fluid is secreted beneath them, which inflates their tubular substance, and causes them to project; but this is all that is at present known, although some species are of considerable size. The most familiar example of the flat-shaped creature, which I have before referred to, is the *Cestum Veneris*. In this species the cilia are placed upon the edge only like a fringe, in a double row, of the most lovely hues imaginable in the sun-light, but which, when darkness veils the surface of the sea, appear highly phosphoric, and emit a most brilliant flashy light. Some of these animals are many feet in length, and under the cilia, for the whole length of the medusa a canal is observed to pass, which is supposed to secrete a fluid for the purpose of erecting the cilia, as in the case of the other *Ciliograda*.

The next division of the *Acalephæ* is the *Physograda*, an animal composed of a bladder-like substance, if that word can be so applied. The familiar instance of these animals, as I have before observed, is that beautiful creature, the Portuguese Man-of-War, which is so often mentioned by voyagers to the East. The shape of the bladder-like body of the medusa is elliptical, with a small additional pear-shaped smaller protuberance at one end, bearing to the body somewhat the relation of a head, at what may be termed the neck of this additional bladder, or where it is contracted; as well as at the

other extremity of the main bladder there is an orifice, through which the animal has the power of contracting the bladders to force out the air within; and thus by repressing the buoyant power, at once sink beneath the waves. That it has likewise the means, by some internal economy of generating fresh air, to renew the supply when it desires to take a sail, is equally certain; and although the apparatus by which this is effected is not understood, it is not difficult to conceive the existence of chemical agents by which it might easily be effected.

As these animals are mostly seen floating on a calm sea in the bright sunshine, it is not impossible that the supply of air being just sufficient to cause it to rise to the surface; the air contained within the bladder may become rarified, and hence more buoyant, needing therefore less real waste than under any other circumstances. All that we see is the delicate body and the bright purple velamina, but depending from this are the same organs, which are found in various forms in all the medusæ, in the shape of tentacula and root-like substances, constituting in fact the animal itself; and busily employed probably in feeding, while it appears merely to be basking in the bright rays.

Another very beautiful specimen of this order is the *Chelyosoma*, which is composed of a disc, more or less transparent, regularly traversed by tubular substances, which branch out as they approach the circumference, and take something of the shape of the Shepherd's purse corallines, and around the circumference is a connected string of small bladders of equal size, which, when distended, appear like a pearly diadem lying on the bosom of the green ocean. From these, numerous filaments descend of a considerable length, and by these, subsistence for the medusa is obtained. These are the types of an order only, and as such are usually adverted to, and it would be manifestly impossible in a paper on the different tribes of Marine Animals to enter more into detail.

Two genera of *Acalephæ* now only remain to be described, but none of those already adverted to are more worthy the attention of the naturalist. The first of these, the *Cirrhigrada*, bear a close apparent resemblance to the *Pulmonigrada*, being supported in the water by a circular concave disc, but in this disc we recognise a semicartilagenous structure, which approaches to the formation of a shell; and is composed of lamina, obliquely placed against each other in rows, extending in straight lines from the centre to the circumference like radii, and these are full of hollow cells. From this shield, as it were, cirrous, or tufted tentacula depend, and some species have an elevated ridge on the upper circumference of the disc, from which a thin membrane is produced, which, catching the air, wafts the little creature on its voyage of pleasure.

Next and last, we have the *Diphyida*, which have long puzzled the learned, as it is wholly uncertain whether they are composed of two separate individuals adhering together, or of one so delicately joined as to raise the

first presumption; the prevailing opinion is, and I think it is the just one, that each pair, in fact, compose one animal. Unlike the other meduse, the *Diphyida* swims, or lies laterally on the water, and is composed of two bells, lying side by side, with a kind of stalk from their closed extremities, which are joined at a short distance from the bells, which have very much the shape of a *Campanula*; its powers of locomotion are the same as the *Pulmonigrada* and *Cirrhigrada*; and from the orifice or mouth filaments, in the same manner, though in less number, protrude.

Before concluding my paper upon this interesting class of Marine Animals, I must advert to a few facts which are transmitted to us from Ehrenberg and other eminent professors, concerning their general habits, construction, and increase. We have seen that they are all inhabitants of the ocean, and sport at will within its volume, or upon its waves; some by sail-like appendages, but most by the mere powers of contraction and expansion, which either expels air or acts upon cilia; and thus a swimming or progressive motion is produced. Their subsistence is obtained by means of tentacula, cilia, or the exuding of some fluid, supposed to act, in an electrical manner, and taken in by pores, through foliated processes, into one common cavity, where the prey, be it fish, or animals of any species, is, after a fashion, digested. They exhibit no trace of nervous system; those filaments, supposed to be the rudiments of a neuralgic system being of far too uncertain a formation to warrant an assertion to the contrary. Of their production little or nothing is known, although from what has been observed, it is presumed that the young are produced in an almost perfect condition, a most remarkable fact, if correct, connected with such a lost, though beautiful order of beings.

Lincoln-Inn-Fields, February, 1852.

LIST OF THE FERNS FOUND IN THE NEIGHBOURHOOD OF TORRYBURN, FIFESHIRE.

BY J. D.

- 1.—*Pteris aquilina*: here, as everywhere else, very common.
- 2.—*Lomaria spicant*: abundant in Valleyfield, Wordsmoor, near Grange.
- 3.—*Scolopendrium vulgare*: rare. Valleyfield, near the Mansion House.
- 4.—*Asplenium alternifolium*: I insert this Fern in my list because, although now nearly, if not altogether, extinct in the place where it was found—Craigloscar Hill, among damp rocks, by Dr. Dewar—a few years ago, still I think it may be included, though with the foregoing qualification. Only found in four or five stations in Scotland.
- 5.—*Asplenium adiantum-nigrum*: rare. Very fine on Culross church; but this generally common Fern is not at all common in this neighbourhood, although a few specimens occur here and there, but never in any quantity.

6.—*Asplenium Ruta-muraria*: not very common, but occurring on walls at Torry and Culross church.

7.—*Asplenium Trichomanes*: common.

8.—*Athyrium filix-femina*: common in damp shady woods, as at Valleyfield.

9.—*Polystichum lobatum*: abundant in shady woods in all parts of the district.

10.—*Lastrea spinulosa*: common in similar situations to the last.

11.—*Lastrea filix-mas*: very abundant.

12.—*Cystopteris fragilis*: rare, but growing in great perfection on Culross church, along with *Asplenium adiantum-nigrum* and *Asplenium Ruta-muraria*.

13.—*Polypodium vulgare*: plentiful in several places in the vicinity; Valleyfield, Culross. Very fine in the Ladies' Walk, Culross Abbey, and on a bank at the Abbey Park there.

14.—*Polypodium Dryopteris*: discovered by Mr. Kirk, growing in the avenue leading to Valleyfield House, in considerable abundance, along with *Blechnum boreale*, (*Lomaria spicant* of authors,) and *Lastrea filix-mas*, *Athyrium filix-femina*, and *Polypodium vulgare*.

15.—*Osmunda regalis*: this rare Fern in the east of Scotland, though found plentifully on the banks of the Clyde in the west, grows in considerable abundance in a small field on the sea-shore, between Culross and Kincardine, near Blair; but I have never succeeded in finding it in fruit.

16.—*Ophioglossum vulgatum*: this beautiful plant exists plentifully in a small wood above Tainianu, Torry, and also in another damp shady plantation on the same estate; in both places in considerable abundance.

Edinburgh, November 11th., 1851.

ON SOME OF THE MODERN GEOLOGICAL CHANGES EXHIBITED IN THE NEIGHBOURHOOD OF GLASGOW.

BY W. FERGUSON, ESQ.

(Continued from page 78.)

In addition to the proofs of an ancient higher sea-level arising from the appearance of these terraces, which of itself would lead us to the supposition that they had been formed by the action of waves, we have the authentic records of the discovery of shells in the clays and sands, of which many of them are composed. Thus at various points in the parishes of Paisley and Renfrew, have shells been found, especially at Oakshaw and Bellahouston. They have been found in some of the brick-fields at Annfield, by Mr. John Craig, and by the same person in various other places, at forty, eighty, one hundred, and three hundred and sixty feet above the sea-level. Shells were discovered

in cutting the canal to Paisley, at a distance of about four miles from Glasgow; twenty-two species were obtained, and a notice of them by Captain Laskey appears in an early volume of the "Wernerian Transactions." A series of shells are in the Andersonian Museum here, procured from Dalmuir, and a notice of their discovery, by Mr. Thomas Thomson, was inserted in the first volume of "Thomson's General Records of Science." Similar deposits are also described as occurring on the shores of Loch Lomond, and more recently at Airdrie.

There is collateral proof of the former existence of the sea, or at least of a branch of it, at the spot now occupied by Glasgow, in the records of the discovery of several canoes, embedded in sand, at various places on our river.

The first of these was dug out of the foundations of the original church of St. Enoch's, in 1780. It was lying flat, and filled with sand and shells. In the bottom there was sticking a celt or hatchet, used by the aboriginal inhabitants. This is of bloodstone, and is figured in "Wilson's Pre-historic Annals." The boat was seen by the late John Wilsone, Esq., who secured possession of the celt, and it is now the property of his relative, Charles Wilsone Browne, Esq. It is in good preservation.

The second was found about 1781, when digging the foundation of the Tontine Buildings. It is alluded to by Chapman, in his "Picture of Glasgow," published in 1818, third edition, page 152. He describes it as "embedded in sand and gravel, several feet below the surface."

The third was found in 1825, when opening London-Street. The position of this boat was vertical, the prow being uppermost, as if it had sank stern foremost. It was also filled with sand and shells. Pieces of it were broken off, but there was no effort made to disinter the boat, and it was carelessly permitted to be covered up again.

A fourth was found in Stockwell-Street, a little above Jackson-Street, while cutting the common sewer, in 1825. Not much is known about this boat.

A fifth has been found within the last two months: it is preserved in the Stirling Library, Glasgow.

No less than four were found in 1847-48, within a few yards of each other, in the course of the operations for widening and deepening the river, at Springfield. They were found about one hundred feet from the margin of the Clyde, and rested on a bed of gravel fifteen inches thick, covering a bed of finely laminated sand. Over it was a bed of loam nine or ten feet thick, surmounted by sand. The entire depth of the situation of the canoes below the surface was seventeen feet, being just about the level of low water in the river. One of these canoes had a plug of *cork*, which is now in the possession of John Buchanan, Esq., Glasgow.

I may in conclusion, offer a few conjectural remarks on the period of the changes indicated by these various facts, as well as on the appearance

our locality may have presented when such beaches as that of Sauchie-hall-Street formed the bound of silver sand that forbade the farther progress of the waves which in those remote ages rolled over the spot now the dwelling-place of our city's busy population.

First of all, I must clearly distinguish between the period when these raised beaches were formed, and that in which these canoes came to be embedded. It requires no more for the embedding of the canoes than that along the flat margins of our river should have existed considerable swamps, lying very low, and subject to inundation every tide; and that this may have been the case within the last two thousand years is very probable. This would give us a considerable rise in the surface of ground around us, similar to what is taking place at present on the Clyde, between Helensburgh and Dumbarton. And that such a supposition is by no means too extreme, the alterations which have taken effect on the Clyde within the period to which our annals refer, sufficiently attest.

But that the great geological changes in the level of the sea are carried back into an antiquity very much greater than the period to which authentic history reaches, is very sufficiently proved by the oldest civilized remains of which our country can boast;—I mean those of the Romans;—of which our immediate neighbourhood furnishes us with a good many instances. My purpose requires me to refer at present to only one of these—the site of the last or terminating fort upon the Roman Wall of Antoninus, or Graham's Dyke, as it is commonly called. This site is occupied by the ruins of a modern fort or house—Dunglass Castle.

I have been favoured with the following particulars as to this wall by Mr. Buchanan, one of our most zealous antiquarians:—"The first time the isthmus between Clyde and Forth was fortified by the Romans was in the year 81, while Titus, the conqueror of Jerusalem, was emperor. This was done by Agricola, during his fourth summer in Caledonia. He placed, however, merely a row of forts, without any connecting wall or curtain, having ulterior plans, which were marred by the death of his patron Titus, and the recall of this excellent officer by Domitian. The wall was constructed about sixty years afterwards, (answering to the year 140,) by Lollius Urbicus, the governor of Britain under Antoninus Pius. The plan of this military fortification was a great trench, stretching from Clyde to Forth, at Dunglass rocky promontory on the former, to Cœriden on the latter; in line with, and connecting the old forts of Agricola, but with a number of additional ones placed at intervals. The earth from the trench was thrown up into a rampart on the south side, and faced at some places with stone, at others with turf, and along the south ran a paved military way. The distance between the forts was generally two miles. It was not nearly so stupendous a work as the great wall of Severus, between the Solway and the Tyne, which was of stone."

We have now to notice that "when both walls were built, they were erected with reference to a sea-level at either end, corresponding very nearly,

if not entirely, with that at present existing in both the Scotch and English estuaries."

If Dunglass was the site of the terminating fort on this coast, its situation almost on line with the present surface of the water, affords a proof that the level of the sea is not lower now than it was in the year 140, or one thousand seven hundred and ten years ago.

If then two thousand years has seen such a slow rise as merely to convert a swamp into dry ground, without almost raising it at all, except where that has been done through artificial means adopted by man, how shall we calculate the epochs necessary for the formation of the numerous beaches found at so many various heights, from the present sea-level up to three hundred and sixty feet? But this is not all; there are terraces covered by the sea: this introduces us to a new element in the computation, namely, that the movements have been downwards, as well as upwards; and increases indefinitely the already almost inconceivable vastness of the time necessary for these processes: and yet, as I have already stated in the outset, this is but the modern period, and, in reference to the preceding eras of geology, may be said to be but of yesterday.

On the whole may we not conclude that the valley of the Clyde was once an arm of the sea; and may we not imagine that at the time when the beds of sand which I have already referred to were being laid down where I have described them, in the hollow of Sauchie-hall-Street, the waters of this noble estuary eddied around the various eminences which mark the physical geography of Glasgow? Garnet Hill would stand out conspicuously—a rounded islet of mud—separated by a narrow, and not deep channel, from Blytheswood Hill. A broader and deeper current would flow on the side towards the hill where Port Dundas now stands, finding its way into the main channel probably by the valley of the Kelvin. Beyond, eastward, Garngnat Hill and the Fir-park Hill might be other islets, while to the south the wide expanse of water would sweep on towards the Cathkin, and other southern hills, with perhaps Camphill and Hillhead, and the other eminences on the south side of the river, appearing here and there above the waves. The scene would wear more the aspect of a landlocked bay, or inland sea, than of an estuary.

But on the remote antiquity of this era who shall speculate? And if this, the most recent of all the geologic periods, is so utterly in its limits and duration beyond our calculation, what of the vast series of eras that preceded it? Thus much we conclude, that the indefiniteness of *time* which geology requires is only equalled by the indefiniteness of *space* which astronomy demands, and the twain only surpassed by the *infinity* of Him who actively fills them both, with the evidence of his presence and his perfections.

Glasgow, December, 1851.

ON THE GROWTH OF SOME LAND SHELLS.

BY H. R. BOLTON, ESQ.

THE last two years I have been paying some attention to the growth of a few of our common Land Shells, from the time of their first appearance after leaving the egg, until their arrival at maturity. I was led to this by seeing a table formed from M. Bouchard's observations, in an edition of "Turton's Manual of Land and Fresh-water Shells," published in 1840, page 306, wherein it is stated of the Zoned Snail, (*Helix virgata*), that the time thus occupied is from eighteen to twenty-four months.

Whether climate, soil, or locality may create a difference, I am unable to say; but this does not agree with the habits of this species of *Helix* in the neighbourhood of Plymouth. I have reason to suppose, from observation, that the entire life of the animal is disposed of in twelve months; that it is an annual; and that it seldom outlives the winter. About September we find the adult animals in colonies of thousands. Towards the latter part of October they begin to disappear, and by December nearly all are gone into the earth, where they secrete themselves under tufts, roots of grass, etc., and they there deposit their eggs: this act being performed, the animal dies. On the returning warmth of spring the eggs are hatched; but the young are not seen until about midsummer. They did not make their appearance this season until the showers of rain which fell in the beginning of July. They then came forth in abundance. I observed hundreds in a minute state, the apex formed, and small whorls just indicated. In ten days after they had grown to a third part of their natural size, in twenty days two-thirds, and from thirty to thirty-five days they had attained a state of perfect maturity.

Another shell, common in this neighbourhood, I find to be also an annual—the Twist Shell, (*Bulimus acutus*;) but its growth is very different, and far less rapid than the above. The young of this *Helix* make their first appearance in March, with the apex and one or two small whorls formed, and although there are myriads of them, not a single mature shell is to be seen or found among them, nor at any other period during their growth. In April they are enlarged by another whorl, in May by a fourth, by June they have five whorls, in July they have increased to six or seven, and about August arrive at full maturity.

They remain on the surface until November, when they bury themselves in the sandy soil which they inhabit, creeping under the roots of herbage, tufts of grass, etc., where they deposit their eggs, and are no more seen alive. A few dead shells may be occasionally found washed by the rain, and drifted from the sand. The same occurs in the *Helix virgata*, whose dead shells may be frequently seen on the surface of the turf.

16, Alfred-Street, Plymouth, November 12th., 1851.

CONTRIBUTIONS TO THE FAUNA OF FALMOUTH.

BY W. P. COCKS, ESQ.

(Continued from page 32.)

Acipenser sturio, *Linn.*—Not uncommon.

Acipenser latirostris, *Par.*—Taken in a trawl net, November 3rd., 1848; length, five feet eight inches, breadth of head ten inches. May 15th., 1850, one, seven feet six inches, was taken by Mr. Snow, a few miles from the harbour; weighed one hundred and sixty pounds.

Scyllium canicula, *Cuv.*—Common.*Scyllium catulus*, *Cuv.*—Common.

Scyllium melanostomum, *Couch.*—Caught on a line, by one of Mr. Yeoman's men, July 16th., 1849; length, sixteen inches; circumference, five inches and a half.

Carcharias glaucus, *Cuv.*—Caught by the same man, length, six feet six inches, breadth ten inches.

Galeus vulgaris, *Flem.*—Trawl and line boats, on the beach: not common.*Mustelus lævis*, *Cuv.*—Trawl and line boats, on the beach: not uncommon.

Acanthias vulgaris, *Risso.*—Trawl and line boats, on the beach: not uncommon.

Squalus spinosus, *Gmel.*—Taken in Mrs. Chard's trawl net, a few miles from the harbour, December 6th., 1849; length, seven feet; breadth, two feet; weight, two hundred pounds.

Squatina angelus, *Jen.*—Trawl and line boats: not uncommon.

Torpedo nobiliana, *Bonap.*—Captured in a trawl net, by Arthur Chard, September 5th., 1845. Length, three feet two inches; breadth, two feet. December 4th., same year, he procured a second fish, length, four feet.

Raia mucronata, *Couch.*—Trawl boats, fish market: not uncommon. One was hooked in the harbour by Dr. Williams' son.

Raia oxyrhynchus, *Mont.*—Not uncommon.*Raia batis*, *Linn.*—Not uncommon.*Raia miraletus*, *Linn.*—Not uncommon.*Raia spinosa*, *Rond.*—Not uncommon.*Raia clavata*, *Mont.*—Common.*Ammocætes branchialis*, *Flem.*—Inlet near Penryn head, Mylor creek, etc.

Gastrobranchus cæus, *Cuv.*—I have procured two mutilated specimens from the stomach of the cod, taken in the spring of the year: market.

MOLLUSCA.*

Eledone ventricosa, *Grant.*—Fishing-boats, and Trawl refuse: rare. In the

* The "British Mollusca," by Professor Forbes and S. Hanley, now in the course of publication, comprises a full description of all the recognised British species, and should be the companion of all interested in this department of Natural History.

stomach of the *Gadus Morrhua*, mutilated fragments: not uncommon. Found a perfect specimen on the beach, Boyer's cellars, August, 1847.

Octopus vulgaris, *Lamarck*.—Fishing-boats, Fish-market, etc.: not uncommon.

Sepiola Rondeletii, *Leach*.—One in the stomach of the *Trigla lyra*; half-digested fragments of four or five specimens in the stomach of the *Scyllium canicula*.

Loligo vulgaris, *Lamarck*.—Trawl-boats, Fish-market, etc.: common. The spawn in Trawl refuse: not uncommon.

Loligo sagittata, *Lamarck*.—Several mutilated specimens from the stomach of the *Gadus Morrhua* and *G. Eylefinus*, in the autumn of 1846.

Loligo media, *Linn*.—One specimen from the stomach of the *Pleuronectes rhombus*; length, two inches.

Sepia officinalis, *Linn*.—Fishing-boats, Fish-market, etc. Spawn attached to *Fucus serratus*, *F. Vesiculosus*, etc., low water mark, Truro river, St. Mawes, Helford, etc.: not uncommon.

Spirula Australis, *Linn*.—On the sands, Bar point, Gwyllyn Vase, Bream Bay, Pendower, etc.: rare.

(Nomen. Alder and Hancock.*)

Doris tuberculata, *Cuv*.—In crevices of rocks, on stones, etc., between tide marks: not uncommon.

Doris fluminea, *Ald.* and *Hanc*.—On stones, extreme low water mark, spring tide, Gwyllyn Vase: very rare.

Doris Johnstoni, *Ald.* and *Hanc*.—On stones, Rowe's oyster beds, near Boyer's cellars: rare.

Doris coccinea, *Forbes*.—On stones, rocks, etc., Gwyllyn Vase, Swanpool, etc.: not uncommon.

Doris repanda, *Ald.* and *Hanc*.—Under stones, old oyster valves, etc., Rowe's oyster beds, Green bank: rare.

Doris planata.—Under surface of stones, extreme low water mark, Gwyllyn Vase: rare.

Doris depressa, *Ald.* and *Hanc*.—Under stones, extreme low water, spring tide, Gwyllyn Vase and Swanpool: rare.

Doris diaphana, *Ald.* and *Hanc*.—Under stones, low water mark, Selley's, Glasson's and Olver's beaches, and at Gwyllyn Vase, extreme low water mark, spring tide: rare.

Doris pusilli, *Ald.* and *Hanc*.—Under stones, extreme low water mark, Gwyllyn Vase: very rare.

Doris pilosa, *Johnston*.—Under stones, attached to *Fucus serratus*, etc: not uncommon. Gwyllyn Vase, Selley's beach, Green bank. *Varieties*.—Pure white, canary yellow, brown, black, and dappled.

* An exquisite work, and unquestionably the best that has appeared on the subject, and should be in the possession of all who take an interest in the habits and propagation of these beautiful creatures.

Doris lævis, Müll.—Crevices of rocks, extreme low water mark, spring tide, Gwyllyn Vase; two specimens in six years.

Tritonia Hombergii, Dalyell.—A fine specimen from Trawl refuse, by Dr. Vigurs, April 10th., 1850.

Goniodoris nodosa, Mont.—Under stones, Green bank, Gwyllyn Vase, Swanpool, etc.: not uncommon.

Goniodoris castanea, Ald and Hanc.—Same localities: not common.

Triopa clavigera, Müll.—On a stone, Gwyllyn Vase: rare. Helford river: not uncommon. June 10th., 1850, one, Gwyllyn Vase.

Polycera quadrilineata, Müll.—On stones and small sea-weeds, in ponds, near low water mark. (Dr. Vigurs found two beautiful specimens of this rare species, by dredging in Gerrans bay.)

Polycera ocellata, Ald. and Hanc.—On stones, and the smaller Algæ in ponds, between tide marks: not uncommon, Gwyllyn Vase, Green bank, etc.

Polycera ocellata, Var. *Cocks*.—On stones, Gwyllyn Vase, extreme low water mark: rare.

Ægires punctilucens, D' Orbigny.—On the fronds of *F. serratus* and *Cellularia reptans*, extreme low water mark, Gwyllyn Vase: rare.

Thecacera pennigera, Mont.—Under stones, Bar beach: very rare.

Ancula cristata, Alder.—Under stones, Green bank: common. Gwyllyn Vase: not common.

Ancula cristata, Var.—Under stone, Green bank: rare.

Seyllæa pelagica, Cuv.—Attached to sea-weed, Bar point, after a storm, (1845:) very rare.

Doto coronatus Gmel.—In *Fucus serratus*, from deep water, after a storm, 1847, Gwyllyn Vase.

Eolis papillosa, Linn.—In stones, rocks, etc., Gwyllyn Vase, Green bank, etc.: common.

Eolis papillosa, Var.—Same localities: not uncommon.

Eolis rosea, Ald. and Hanc.—In stones, Gwyllyn Vase: not common.

Eolis coronata, Ald. and Hanc.—Attached to the under surface of stone, Gwyllyn Vase: not common.

Eolis rufibranchialis, Johnston.—Trawl refuse: not uncommon; under stones, Gwyllyn Vase: rare.

Eolis alba, Ald. and Hanc.—Attached to stones in ponds, Gwyllyn Vase, between tide marks: not common.

Eolis alba, Var.—In crevices of (shelving) rocks, Gwyllyn Vase: rare.

Eolis olivacea, Ald. and Hanc.—Among rocks, under stones, on *Sertularia plumula*, Gwyllyn Vase: rare.

Eolis despecta, Johnston.—In the *Laomedea geniculata*, Penryn Creek, Rowe's oyster beds, etc.: very common in 1847.

Eolis glauca, Ald. and Hanc.—Under stones, etc., Gwyllyn Vase.

Eolis Alderi, Cocks.—Under stones in ponds, between tide marks, etc. Gwyllyn Vase: rare.

Eolis Couchii, *Cocks*.—Under surface of stone, extreme low water mark, spring tide, Gwyllyn Vase, (the only specimen procured.)

Eolis exigua, *Ald.* and *Hanc.*—On *Laomedea geniculata*, Penryn Creek, Rowe's oyster beds: not uncommon; Helford, August, 1849. Every blade of *Zostera Marina*, examined, covered with the adult animal and ova.

Miscellaneous Notices.

Singular lining to a Squirrel's nest.—In the woods in the neighbourhood of Dunkeld, there are great numbers of Squirrels. Whilst staying at that place last summer, I fell in with a curious character—a fellow who professed to be ostler at the Duke of Athol Hotel—and who, from being a good fisherman, and possibly somewhat of a poacher, had evidently become in his way a bit of a naturalist. It appeared he was very fond of rearing Squirrels; and he told me that last year, on climbing up to a nest, which might have been some twenty or thirty feet from the ground, he was much astonished at finding in the bottom of it the body of a full-grown Rabbit, which evidently had not been dead very long; and, from the manner in which it was placed in the nest, he had no doubt that it had been taken up the tree by the Squirrels to serve for a warm lining for the young when brought forth. Mr. Knox, in his "Game Birds and Wild Fowls," mentions having been told by a keeper that he actually saw a Squirrel carrying a half-grown Pheasant (alive) up a tree; "this proved, however, to have been an invention of the keeper's brain;" but the story is not, I think, at all improbable, supposing the Squirrel about to appropriate the Pheasant in the same way as the Rabbit was used.—MARTIN CURTLER, Bevere, Worcestershire, March 1st., 1852.

Do the Hawk tribe drink.—I have a tame Golden Eagle and a tame Kestrel: I had never seen either of them drinking, although constantly supplied with fresh water, and about two months ago I took the water from both birds, and they have never had any since. They are both in very good health. In summer time the Eagle bathes himself in a large tub, floundering about in the water until all his feathers become so saturated that he is not for some time able to fly to his perch. I had a Peregrine Falcon which was equally fond of bathing, but I never saw him drink any water.—Idem.

Occurrence of the Cuckoo.—The "Ayr Advertiser" states that a Cuckoo was seen flitting about the plantations at Seafield on Wednesday last, the earliest appearance of this harbinger of summer in this neighbourhood.—J. FLINT, Glasgow, March 22nd., 1852.

We have no doubt of the correctness of the statement forwarded to us by Mr. Flint, as in a letter received the same day from our esteemed correspondent, J. P. Fraser, Esq., he mentions that he heard the Cuckoo at Blantyre, about seven miles above Glasgow, on the 12th. of March; and a friend of Mr. Fraser's, to whom he mentioned the fact, stated that he had heard it in the same place on the 10th. The weather had been very fine and mild, but not much sunshine, till the following week, when the weather was like the end of April.—B. R. M.

Occurrence of the Landrail, (*Crex pratensis*), *in February.*—When out with a coursing party on the 10th. of the month, a Landrail took wing from a stubble-field, but was captured after a short chase. It was in full feather and good condition. Has the bird wintered here, or been tempted to migrate from the mildness of the season?—C. NELSON, M. D., Lytham. Lancashire, February 16th., 1852.

A White Magpie, (*Pica caudata*).—Early in March, 1847, I was called to a patient about five miles from Looc, and my attention was directed by the gentleman I visited, to what he called a White Magpie, in a wild state. On examining her, (for she proves to be a female,) as well as from the well-known shyness of Magpies she would allow me, I found that her head and neck, and the whole of her body, with the exception of the upper and under tail coverts, were of that pure and delicate white so remarkable in the Magpie; her wings and tail were natural. On visiting the same gentleman this day, December 12th., 1851, I was much pleased at seeing my old friend, the Magpie, but in a somewhat different dress to what she wore when first I saw her: she now appears completely white, with the exception of the

primaries of both wings, and her tail, which still possess their natural colour. I have had frequent opportunities of seeing her during the periods mentioned above; and I have remarked with pleasure the gradual increase of whiteness. She appears rather smaller than natural, particularly her head; but whether she is really so, or only in appearance, from want of the usual blackness of her head, I cannot say. She was hatched in the breeding-season of 1846; consequently she is now in the sixth year of her age, having had a long lease of her life, considering how much 'rare aves' are sought after by naturalists, as well as taxidermists. When I first saw her in 1847, she was mated, and although she had a nest and eggs in that year, she did not produce any young; but since then she has had two or more broods, all of which have turned out true and veritable Magpies, both in their plumage and nature. If we may judge from this case, Magpies must possess a remarkable amount of local attachment, as she has been for nearly six years, and is still to be seen within a radius of half-a-mile of my friend's house; indeed, I have seen her some dozen or more times within a quarter-of-a-mile of the same spot. The fact of her confining herself to this locality cannot be doubted, as her peculiar plumage renders her identity unmistakeable. I could almost wish she might be allowed to die a natural death, to enable us to form some idea as to the longevity of these birds in their wild state; but as she appears to me to be quite unique, I have persuaded my friend, under whose protection she has escaped all danger so far, to have her shot this winter, so that she may be preserved. If he succeeds, I will then send you a more minute account of her plumage, if you think it of sufficient interest.—STEPHEN CLOGG, East Looe, Cornwall, December 13th., 1851.

Occurrence of Doritis Apollo, near Falmouth.—Last year a specimen of the Apollo Butterfly was captured by the son of J. S. Enys, Esq., of Enys, in the parish of Mylor, and sent to the Exhibition of the "Royal Cornwall Polytechnic Society" in the autumn of the same year. Miss Warren informed my friend, Mr. Lovell Squire, that Sir Charles Lemon had taken one at his residence, Carelew, four or five miles from this place.—W. P. COCKS, Falmouth, March 20th., 1852.

Contents of a Vallisneria Jar.—*Vallisneria spiralis* belongs to the natural order *Hydrocharidæ*, which are aquatic plants, chiefly found in Europe, Asia, and North America; its natural habitat is the still portion of rivers and lakes; and, for the beautiful contrivance displayed in the mechanism for keeping the female flowers, which are on a long spiral peduncle, on the surface of the water, till the male flowers, which grow on the surface of the mud, are sufficiently developed to break away, come to the surface, and swim to the female, to allow the application of the pollen, has been the theme of the poet's song. When growing, its appearance is not at all inviting, as it looks just like so much grass in the water; but to compensate for this uninteresting appearance, the phenomenon of the rotation in its cells, as displayed by the microscope, is, without doubt, "the grandest that has yet been seen in the whole vegetable kingdom." The best way to see this phenomenon is to fold one of its leaves across the finger, and insert a lancet or sharp penknife just under the cuticle, and so divide the leaf in two. One of these layers, when placed under a power of two hundred diameters, will exhibit a number of green granules, which, generally speaking, will be found in rapid circulation around the walls of each cell. If the circulation is languid, a little heat will assist in making it distinctly visible. The average velocity of the current, according to Mohl, is one-one hundred and eighty-third of a line in a second. Professor Balfour says, "the cause of rotation has not been satisfactorily explained." In addition to the above phenomenon, which of itself will repay the trouble of procuring and keeping the plant, some of the leaves become covered with a brownish matter, which, on examination, will be found to consist of multitudes of animalcules. The following is a list of such as I have observed at various times:—Of the first family, *Monadina*, there were three or four species, and among them was *Microglæna monadina*. Of the fifth family, *Closterina*, there was *Closterium acerosum*, which formed by far the greatest number of microscopic forms observed. Of the tenth family, *Bacillaria*, there were *Navicula Phœnicenteron*, *Eumotia triodon*, and *Fragilaria grandis*, which was very delicate, and very fragile; at the time I observed it, I was not at all inclined to rank it as an animalcule, but was of the firm belief that it was of vegetable origin. Of the thirteenth family, *Vorticellina*, there was *Trichodina tentaculata*. Of the twenty-eighth family, *Euchlanidota*, there was *Mastigocerca carinata*. And "last, though not least," of the twenty-ninth family, *Philodinæa*, there was *Rotifer vulgaris*.—HENRY WATTS, Bristol, December 7th., 1851.

Review.

Popular Field Botany, containing a familiar and technical description of the plants most common to the various localities of the British Isles; with Eighty coloured figures of Plants. By MISS CATLOW, Author of "Popular Conchology." Second Edition, Royal 16mo., p. p. 384. London: REEVE AND BENHAM.

THE title-page of a book is not always, as it should be, a condensed index to the contents of the volume; in the case before us however, the promises on the title-page are amply and faithfully carried out. Miss Catlow's book is admirably adapted to assist those commencing a study of Botany; the plants described are those most usually met with in our every-day walks in the fields and lanes, so that the learner is not confused and puzzled by a multiplicity of plants, which he may be many years a diligent collector before he is able to procure: Miss Catlow makes him familiar with the names and properties of those he is most likely to meet with, and the selection of plants suitable to her purpose, appears to us to be extremely happy. The numerous coloured figures will be a great assistance to those who are not personally familiar with the plants they daily see.

The book is arranged under the months of the year, and this plan enables the author to give much useful information in a pleasing and intelligible form. The arrangement embraces both the classification of the illustrious Linnæus, as well as what is called the Natural System of De Candolle. The young student will find ample and safe instructions for preserving the plants when found; a matter of much moment to the inexperienced; and as about six hundred species are *described*, it is probable that the name may also be found without going beyond the limits of the present book. Miss Catlow, however, very modestly looks upon her work as only preparing the way for the larger standard authors on this interesting subject. It is with real pleasure and with much confidence that we recommend this little work to our readers, both on account of its own intrinsic worth, and also as the production of a lady. It is with great satisfaction that we observe a growing interest in Natural History among the fair sex; we are quite sure that, whether taken up as an ordinary recreation, as a matter of serious study, or as a solace in a state of ill health, the most satisfactory results will ever await those who enter on the study in a proper spirit, such as is evident in the "Popular Field Botany."

We always feel grateful to an author who places the study of Natural History in its true light, namely, as the handmaid of religion; and although we should consider any lengthened theological discussion ill-judged in a systematic work on Natural History, yet such incidental allusions as occur in the work before us, are most proper and useful, and can nowhere be more beneficially introduced than in a work professing to treat of some of the wonderful works of God.

We trust a *third* Edition of the "Popular Field Botany" may soon be required.

Proceedings of Societies.

Natural History Society of Glasgow.—The ordinary meeting of this Society was held on the 3rd. of February, 1852, when there was a full attendance of members.

DR. LORRAIN handed in his resignation of the office of Vice-President, being about to leave the country on account of his health. The Society accepted it; and in doing so, the meeting recorded their deep regret at the sudden removal of so valuable a member from among them, and expressed their sympathy with him in his present circumstances. On the motion of Mr. William Ferguson, Mr. Thomas Gray was unanimously elected to fill the vacant office.

MR. FERGUSON exhibited a pretty variety of *Purpura lapillus*, forwarded by Mr. Charlesworth, of York. It was picked up by that gentleman at Arran, in 1849. It is smooth, white, and very much acuminated.

Specimens of a very beautiful variety of *Nassa reticulata*, also forwarded by Mr. Charlesworth, were exhibited, and a notice of it by Mr. Charlesworth read.

He also forwarded for exhibition, specimens of minute shells, beautifully mounted, accompanied with these remarks—"It is a most important object, especially in public museums, to mount small specimens in such a way that they may be secure from injury by dust, and yet be readily accessible to close inspection. My own way of attaining this is to gum the shells or other objects on a thin slip of card, one end of which is inserted in the cork of a small glass tube. The objects fixed in this way may be much more conveniently examined than if loose in the tube, while a number, or other memorandum, may be written on the back of the slip of card. If very close inspection is required, it is only necessary to draw out the cork."

The specimens exhibited were—

Montacuta bidentata, *Rissoa costata*, *Truncatella Montagui*, and *Bulla truncata*, and they were numbered with reference to a "Catalogue of British Marine Shells," prepared for the "British Natural History Society;" a copy of which was laid on the table along with the specimens.

On the motion of the PRESIDENT, the thanks of the Society were voted to Mr. Charlesworth for his interesting communications.

MR. GOURLIE read a most interesting paper "On the Botany of New Zealand," illustrated by a beautiful collection of plants and drawings.

MR. J. P. FRASER then read a paper entitled, "Notes on a Sandstone quarry in the neighbourhood of Glasgow," illustrating his remarks with sections.

MR. COLIN BROWN, Glasgow, and JAMES PATON, Esq., M. D., Paisley, were admitted resident members.

March 2nd., 1852.—MR. HENNEDY exhibited a specimen of *Alasmodon vulgaris* from the Clyde, below Clyde Iron Works, which contained a great number of pearls; also a specimen of *Buccinum undatum* from Gourock, the apex of which was broken off, presenting a very singular appearance. It was suggested that, probably the apex had been mutilated accidentally, and the animal had deposited calcareous matter upon the opening which consequently had been made, and thus filled it up so as to protect itself.

MR. THOMAS GRAY, the Vice-President, read a paper, entitled, "Some notes upon a species of *Strombus*, in the Hunterian Museum, supposed to be unique." He illustrated it by a beautiful drawing of the shell taken by himself in water-colour. This paper will be printed in full with a lithograph of the shell.

MR. GEORGE DONALDSON was admitted a resident member; and the REV. DR. LANDSBOROUGH, Saltecoats; MAJOR MARTIN, Ardrossan; the REV. JAMES YUILL, Peterhead; BEVERLEY R. MORRIS, Esq., M. D., York; EDWARD CHARLESWORTH, Esq., F. G. S., York; and DR. T. B. GRIERSON, Thornhill, were admitted corresponding members.

Business being concluded, the Society adjourned to the first Tuesday in April.

The Quarist.

I shall feel greatly obliged to any one who will kindly inform me what is the best medium in which to mount the more delicate of the *conservee* for the microscope. I have hitherto failed in my attempts to preserve them. I shall be very happy to exchange duplicate specimens with any gentleman similarly engaged with myself.—T. P. FERNIE, Kimbolton, March 12th., 1852.

A STROLL THROUGH A BEECH WOOD, ON THE SOUTH DOWNS, SUSSEX.

BY MISS AGNES CATLOW.

"Hear how the Nightingales, on every spray,
Hail, in mild notes, the sweet return of May!
The gale that o'er yon waving almond blows,
The verdant bank with silver blossoms strows;
The smiling season decks each flowery glade,
Be gay, too soon the flowers of spring will fade."

SIR WILLIAM JONES.

NOTHING can be more charming than a ramble amongst the woods in the latter days of May, when the spring flowers are in perfection, the air sweet and balmy, the birds busy and pouring forth their joyous song, and our own feelings in unison with these sources of pure enjoyment. Those who are botanically inclined will perhaps be my companions in imagination in one of my oft-repeated rambles through the Beech Woods of the South Downs, where sweet scenery, fine air, and many botanical treasures await us. We leave our house about three miles south-west of Midhurst, which faces these Downs, and riding through the pretty lanes, from which we have constant peeps of the hills before us, for about a mile and a half southward, arrive at the small, but beautifully-situated village of Trayford: the church and small number of houses of which it is composed, are within a few hundred feet of the hills, and we have but to cross a field to be at once upon them.

How lovely the Downs look, stretched out before us, running east and west as far as the eye can reach; on the west joining the Hampshire range, under one of the slopes of which, within fifteen miles of us, lies the celebrated village of Selbourne, so well known to all lovers of Natural History, as the residence of Gilbert White; on the east inclining nearer the coast, and ending in Beachy Head.

This walk, through the field, is very pleasant, but we are now on the rising ground, and fairly on the Downs; we at once enter one of the numerous Beech Woods, and we shall find that it shades a little stream, which has its source higher up, and adds greatly to the picturesque beauty of the spot, for it issues freely from the ground, and has worn itself a way through the stones and chalk, by its constant and rapid motion, leaving high banks difficult to descend. But look around, the ground is clothed with plants, whose beauty and comparative rarity must now command our attention.

The edges of the wood are white with Sweet Wood-ruff, (*Asperula odorata*,) a lovely little plant when freshly gathered, and when drying gives out a very agreeable odour, resembling that of the Sweet-scented Vernal Grass, (*Anthoxanthum odoratum*.) The genus derives its name from *Asper*—rough, many of the foreign species being clothed with hooked bristles. The leaves are about eight in a whorl, placed at intervals on the slender stalk, which is not above six inches high; the small white flowers form a loose bunch, and are funnel-

shaped. It belongs to the *Rubiaceæ* family, in which so many useful plants are found; for example, the Cinchona trees, which produce Peruvian or Jesuit's bark, so much used as a tonic, and brought from different parts of Peru; Cephælis Ipecacuanha, growing in the woods of Brazil, and yielding the medicine of that name; Coffee, the fruit of the *Coffea Arabica*, and the Madder, (*Rubia tinctoria*), so valuable for dying red, purple, and orange, are all included in the same family. Mingled with the *Asperula*, we find the Wood Sanicle, (*Sanicula Europæa*), another pretty and interesting wood plant. Look how ornamental the smooth, shining, and palmate leaves are, and the heads of minute white flowers rise up from the ground as if to attract attention. You find on examination that it is one of the *Umbelliferae*, to which family belong so many useful, and also poisonous plants. I need scarcely mention the Carrot, Parsley, Celery, Fennel, Parsnip, and Samphire, all valuable as food; and also Carroway seeds, the fruit of the *Carum carui*. Then amongst the poisonous genera are the Hemlock, (*Conium maculatum*), Hemlock Water Drop, (*Eranthe crocata*), and Water Hemlock, (*Cicuta virosa*.)

Now let us enter the wood, and no sooner do we begin to climb the hill than among the dry leaves of last year, we meet with a curious plant, which at first sight, has the appearance of a dead flower-stalk; but gather it, and you will find that it is not only living, but highly curious and beautiful, though the colour is that of a dead and faded plant. It is one of the *Orchidaceæ*, the Common Bird's Nest, (*Listera nidus avis*.) Altogether it is an extraordinary production; in the first place its roots are formed of short, thick fibres, and if we pull one up carefully, we shall find they cross each other so as to look somewhat like a bird's nest: the plant is supposed to be parasitic. There are no leaves, a few scales clasping the stem supplying their place, and above these rises the spike of flowers of a dingy brown, and about a foot high. Near it is another species of a much more healthy appearance, but not more curious, called Tway blade (*Listera ovata*), from the two large opposite leaves; the spike rises from between them about a foot high, the flowers of which are small, rather distant on the stalk, and of a yellowish green. The two broad leaves are so marked a feature as at once to make this plant familiar, and in this wood you see it abounds, though scarcely so fully in blossom as it will be next month. Now let us examine another lovely specimen of the *Orchidaceæ*, the Butterfly Orchis, (*Habenaria bifolia*.) You need not spare the flowers, for you see we have them in profusion, and in some seasons I have carried home baskets full of these lovely plants, and have even sent them to friends in town, who preserved them in water for some time, enjoying their fragrance and beauty.

We have now come to a damper part of the wood, indeed we are not far from the spring I mentioned, and you see in this marshy copse we may gather as many as we can carry, without risking the extermination of our favourite. Its large yellowish white flowers render it very attractive, and the long slender spur at the back of the blossom is a striking characteristic:

it has two or three large leaves below, very shining underneath, and a few smaller on the stalk, which grows about a foot and a half high. I shall not easily forget the delight I experienced the first time my eyes rested on this plant; and when I found I might possess hundreds of specimens, I became rather greedy, and I did not leave the wood till I had gathered baskets full, the fragrance and beauty of which afforded me great delight for many days. The blossom, when fully expanded, certainly resembles a butterfly; others are like bees, flies, spiders, etc., and some found abroad are likewise compared to doves, eagles, snakes, lizards, and frogs; the colours, spots, and stripes on the large lip, often have the appearance of the skins of leopards and tigers. The properties of the family are mucilaginous, aromatic, or antispasmodic, and tonic, varying in the different genera. *Salep*, used as an article of food for invalids, is derived from several species of *Orchis*, and generally brought from Turkey, where it is called *Sahleb*. *Vanilla* also used in confectionery, and in flavouring chocolate, and perfuming snuff, is derived from the fruit of several species of the *Vanilla* genus.

Here is a treasure indeed, a single specimen of the Fly Orchis, (*Ophrys muscifera*.) This is the first time I have met with it in this locality, though it is abundant in the eastern counties, also in Surrey and Kent. The flower is indeed very curious; the genus differs from the *Orchis* in having no spur; the narrow lip which has only two lobes at the extremity, is coloured with a broad pale bluish spot in the centre; the side petals are quite slender, and with the lip are of a blackish purple; their slender form causes them to look like the antennæ of the insect. We may still add another lovely Orchidaceous plant to our collection, this is the White Helleborine, (*Epipactis grandiflora*.) It is scarcely yet fully expanded, but you see there is promise of great profusion in a short time. However from this specimen, more open than the rest, we may remark its peculiarities and beauties; the whole flower is a lovely white, the lip very concave at the base, three-lobed and yellow within, the bracts are longer than the flower, the leaves are oblong and sessile, and the whole plant is about a foot and a half high. The *Epipactis latifolia*, I have found here in July and August; it has a more drooping spike of flowers; they are not white, and much less conspicuous, being of a purplish green.

We must not overlook the curious Herb Paris, (*Paris quadrifolia*,) and here we may gather as many as we please. You are aware that the plant derives its name from the word *pars*—a part, on account of the division of all its parts into four; the calyx is divided into four, the petals are four, the berry is four-celled, and in general there are but four leaves, though in this wood I have found specimens with five, six, and even seven leaves; here is one with the latter number, and you see those with five are quite common. It belongs to the family *Trilliaceæ*, the plants of which are either acrid or narcotic: Paris has the latter property. Here too we find the Solomon's Seal, (*Convallaria multiflora*.) What an elegant plant it is! with its arched

stem, like the frond of a fern, large handsome leaves standing erect in two rows on the upper part, and the numerous pretty though small flowers, white tipped with green, drooping in the opposite direction. There cannot be a greater contrast than in the two plants we have just found, the stiffness of the former and the elegant curve of the latter will equally attract the notice of the botanist. *Convallaria multiflora* belongs to the *Liliaceæ* family, many genera of which we are well acquainted with, as showy plants in our gardens; some are used medicinally, as the squill, the aloe, and several others; whilst the onion, shallot, and garlic are used as articles of food.

But I must desist, for the scramble on the sloping ground has been fatiguing, and we are loaded with flowery treasures; we leave abundance however to call us back for another search next month, if my present companions are sufficiently interested in this excursion to follow me in a June ramble to the South Downs.

Beaconsfield, March 19th., 1852.

NOTES ON THE ROOK, (*CORVUS FRUGILEGUS*.)

BY J. MC'INTOSH, ESQ.

(Continued from page 93.)

IN a former communication we have therein pleaded the cause of these innocent birds, whose sociability excites our admiration, and whose interesting gambols enliven our country mansions and villages; we will now turn our attention to their nidification and their manners. It is well known that the Rook has a peculiar attachment to the lofty monarchs of the forest, immediately adjoining the mansions of the opulent, as if they looked up to the noble owners for that protection which they so richly merit at their hands. They rarely build in single trees, and never in large and solitary woods, preferring to such places the busy haunts of their enemy; here they build, and rear their young with the greatest confidence, as may be seen in some of the frequented parts of London and Edinburgh. Their affection towards their nursery, or as we call it, the rookery, is remarkable, frequently visiting the same from the place of their summer labours. As soon as churlish winter has left us, they commence the necessary repairs of their former habitation. We are perfectly satisfied in our own minds, from attentive observation, that the pairing of these birds takes place only once in their lives, that is, should no accident, but natural death, befall either. They live on as man and wife, year after year rearing their young and repairing their nests, some of which, from the yearly accumulation of twigs and moss, we have seen of a very considerable size, which the happy pair commenced immediately after their honeymoon, and year by year added to its bulk. This affair being settled all is harmony and good feeling in their community, their whole attention is now in laying, hatching, and rearing their tender young, wherein they

display much care and tenderness, and no disturbance takes place till the young are nearly fledged, when—

——“Their sorrows now begin,

Which briefly mourns my muse,
Some villain bold, and at the dead of night,
Whose callous heart feels not of nature's pangs,
Hurls down from genial beds the feathered brood,
And deals destruction round.——
In vain from towering heights the parents' cry
Would force compassion from th' unhardened breast;
Alas! their host hears not the painful moan;
He sleeps, and wakes but to deplore their loss.”

Why such a vulgar prejudice, or a still more vulgar notion of their being delicious eating, should contribute erroneously to the destruction of these lively and useful creatures, to us is strange, for with all the beefsteak or fat bacon, they are to us but poor eating. To some of your readers this may appear trivial, and they may argue that it affords them great pleasure to go *Rook-shooting*, and that if they were not in some measure destroyed in this way, we should be over-crowded, to the destruction of our property. Such can never be the case: the Great Almighty, in his admirable arrangements, has provided against anything of this kind occurring. Look, for instance, to the quantity of the bird genera which are existing in the world; it surpasses all our power of enumeration, at least as to any real distinct conception of the amount, for we can only pen down the words billions, trillions, quadrillions, and such like augmentative terms, in which all comprehension soon becomes lost in mere verbal sound and confusive obscurity. Yet with all these birds we find no crowding, no confusion, no revengeful wars; this enormous amount is nowhere visible to our senses. Who but an Almighty could have arranged such multitudes of living and ever-moving beings in positions, limitations, and habits so wisely appropriate to each—so productive of comfort to every one? The truth is, the further we inquire into the laws of animated nature, the more are we surprised at the beautiful arrangements that have been made for each other's enjoyment. No idea can be more erroneous than for man to suppose that the animal creation was made for the purpose of being subservient to him; in nothing is his ignorance and self-conceit so obnoxious as in upholding such an idea, although maintained by philosophers of all ages.

But it is now high time we should return to the Rookery. When unmolested, the old birds use every artifice in their power, by parental example, to induce their young to leave the nest and perch upon its edge, and then, by farther encouragement, to the branches adjoining; having succeeded so far, they next induce them to take short flights from the breeding-trees, as soon as they can flutter, at which time it is not unusual to see one of the juveniles make a false step, by which it is precipitated to the ground, if it is not fortunate enough in its descent to hold fast by a twig. If it should

perchance descend to the ground, the old birds immediately follow to ascertain the result, and if not killed, but able to hop or jump along, they entice it away to some place of shelter, such as under a bush or shrub, and daily attend to its wants, till it is able to take wing, if no prowling enemy in the meantime has devoured it. Then they roam about without restraint, till their strength fails them, and then, solitary and resigned, they patiently await death on the brink of the same stream where they sang their loves, and beneath the trees which bear the nests of their posterity. The young, for a few evenings after flight, will return with their parents, and roost where they were bred. It is amusing to watch with what care the parents lead them forth in search of food, walking about in the meadows and other grass lands collecting snails, slugs, and insects, while the young are cawing around, or watching with anxious eye a passing fly, at which they will make a dart, and invariably succeed in making a mouthful of it. When the old birds have collected sufficient, they will hop and strut with much dignity towards the young, who are ready with open mouths to receive the dainty morsel, which the old birds give them by thrusting their beaks into the open ones of their young, into which they empty the contents of their own. In a short time after this, that is when the young are able to take long flights, they betake themselves off, as we have before said, to the downs, moors, and heaths in search of food. As soon as autumn is felt, they return to their forsaken habitations, and will often set about repairing the same, as if they intended a second incubation. After a consultation and a good deal of bustle, and some slight misunderstanding, they fix upon the most sheltered part of the Rookery to roost in for the winter, but if a small Rookery, they betake themselves to the nearest larger one. They now make excursions during the day to the adjacent fields, and in their flight to and from the same they make, or rather perform, a variety of evolutions, which to the naturalist are very interesting; the cause of such gambols I cannot understand. From the fields where they have been busily engaged, if the weather has been open, in pulling up the roots of plants in search of insects, they return about dusk, sometimes in clouds, but generally in a sort of line, with a slow and steady flight.

The Rook is very bold in defence of his home and young, not suffering the Crow, Raven, or Heron to roost or build near his habitation. If one of these intruders should be bold enough to make his appearance, the whole colony gives chase and battle; and should a Hawk hover in sight, he is glad to beat a retreat in double-quick time. Yet they permit the Starling, who, bye-the-bye, is a regular companion of the Rook in his rambles through the meadows; the Sparrow and the sprightly Tomtit to build and rear their young in a hole in their nests, being well aware that there is nothing to fear from these birds. The Rook is grateful for any kindness it may receive from man's hands. During our residence at Milton Abbey, in Dorsetshire, the old birds, with their young, regularly every year paid a visit to

the housekeeper's window, which looked into a small shrubbery adjoining the Rookery there, and were fed with crumbs from the sill of the window; first the old bird would alight from the branches of a Catalpa tree to the ground, and then to the sill of the window; the young would immediately follow their parents' example. On their return in autumn to the Rookery, they would proceed to the Catalpa, and announce their arrival, and, I am happy to say, were always received with the same good feeling as in their spring visit. The instinctive sagacity shown by the Rook in avoiding the approach of sportsmen, or other suspicious characters, is remarkable to a degree. They can also with equal discrimination discern and attach themselves to friends. The Rooks at Milton Abbey would allow a person to approach within a few yards of them, when they would make a sort of jump or short flight, and if a piece of bread were thrown to them, they would advance with an air of dignity and pick it up. We have frequently watched them and the Jackdaw picking the meat off a bone immediately under the paws of a Newfoundland Dog in front of our door, without showing the slightest fear. Many interesting accounts are to be found in works on Natural History, of their deserting the Rookery on the departure of the owner thereof, and settling themselves in trees near his new residence. Could we but dive into all the mysteries of a Rookery, volumes might be written with much that man never dreamt of, with all his boasted philosophy. It has been advanced that they prefer elm trees for their habitations, but this is not the case, as far as our observation goes. We have found them in elm, oak, beech, ash, spruce fir, Scotch fir, larch, horse chestnut, Spanish chestnut, sycamore, plane, lime, and even in the apple tree, but most frequently in the oak, elm, and beech. They are not over particular as to the height of the tree, as is well exemplified in the Rookery at Dalkeith, in which we have spent many hours watching their ways and doings. Here they build in young bushy oaks, not over fifteen feet high: in two trees of this height, we have counted six nests in one and five in the other.

We now come to a somewhat disputed point in their history, namely, the absence of feathers on the bills of the old birds. Without troubling ourselves with what has already been advanced by various naturalists, we without further hesitation pronounce it to be the effects of *old age*, just as an old man becomes grey, and that delving has nothing to do with it. This off-handed way of dealing with a disputed subject may appear strange to some of your readers, but we have on more occasions than one watched the gradual and natural decrease of these feathers from birds which we have kept domesticated, and which were never observed delving; but on referring to our notes, we do not find that we have, which we much regret, made any entry respecting the date or time of age that this takes place. In support of this opinion, we find your respected correspondent, the Rev. W. Waldo Cooper, inclines, see vol. i., page 53, of "The Naturalist;" as also the Rev. F. O. Morris, in his invaluable "British Birds," vol. i., page 338. That the young

Rooks do migrate from the Rookeries which are already thickly inhabited, and settle in new localities, is evident by the numerous small ones that are to be met with throughout the various counties of England, Scotland, and Ireland, and various other countries; but this migration is not to the amount that some naturalists imagine. In the following Rookeries, namely, Dalkeith Park, near Edinburgh, Monzie and Abercarney, Perthshire, Milton Abbey, Charborough, Whatcombe, and Canford, in Dorsetshire, we have observed an annual increase, to a certain extent, of young pairs of the same Rookery, without any molestation on the part of the older inhabitants to them; but should Rooks from a distant Rookery attempt to rear an habitation in an old established one, they are quickly dislodged, and driven to seek fresh quarters. We must also take into consideration the amount of both young and old that are slaughtered by *Rook-shooters*, and various other causes both natural and accidental; these large gaps in the colonies have to be made up, and such is done by old and young pairing together; we have frequently seen pairs in a rookery, consisting of an old male and a young female, also an old female with a young male; we have also watched these birds picking up sticks and moss from the ground, and carrying them to their nests. This is sufficient in some measure to account for what becomes of a certain amount of the young. And again, young pairs of the same rookery pair and build their nests in adjoining trees to those which gave them birth; and as we have before said, without any molestation on the part of their parents and their neighbours, except when they have been caught in the act of stealing the materials from their neighbours' nests, which the young birds are apt to do, the whole colony is in an uproar, and the unfortunate pair are driven to seek fresh quarters: this we have on many occasions observed. Others, and that but to a small amount, betake themselves in search of a new locality.

We feel perfectly satisfied that these remarks will be received by many readers, who have not paid close attention to the subject, with pooh, pooh, nonsense, but we candidly assert that they are observations made for years in England, Scotland, and Ireland; and be it remembered "Facts are stubborn things." There is one fact in the character of the Rook that in conclusion we must not omit, and which is peculiar to them, that is, the distress which is exhibited whenever one of their companions has been wounded or killed while feeding in a field or in flying over it, instead of being frightened by the report of a gun, and leaving their dead or wounded companion to his fate, they shew the greatest sympathy for him, flying over him in circles in the air, and uttering cries of great distress, shewing that they wish to render him assistance; some of the old birds will even make a dart through the air close to him, as it were to find out the reason that he does not follow them. If perchance he is only wounded, and can flutter a little way along the ground, his companions appear to animate him to make fresh exertions by flying a little in advance, and uttering cries of encouragement. Even when a dead bird is hung up in a field to frighten them away, they will collect in

hundreds over it uttering loud cries to ascertain the cause; but as soon as they find it is hopeless, they leave it to be bleached by the dews and rains of heaven. Here,

———"We can trace,
Examples worthy of the human race."

Merriott, near Ilminster, January 12th., 1852.

THE LEPIDOPTEROUS INSECTS OF MIDLOTHIAN.

BY DR. W. H. LOWE, F. R. S., ED., ETC.,

AND R. F. LOGAN, ESQ., M. R. P. S., ED.

THAT some account of this branch of Natural History is at present demanded, seems to me sufficiently attested by the fact that the only description of the Lepidopterous insects of Edinburgh at present existing, is that published by Mr. Stuart, in the "Wernerian Transactions," for 1808, being a mere list of insects found, and containing only one hundred and eleven species. When we take into consideration the increased attention which has been given to all branches of Entomology since the early period I have named, and the increased success in capturing insects, which has resulted from a more intimate knowledge of their habits, to say nothing of the various agents now employed to allure them, as the use of light, and especially the smearing of saccharine mixtures upon the rocks and trees, it will not surprise any one that the list we now present contains not merely double the number of those in Mr. Stuart's, but no less than five hundred and eighty-two well-authenticated species.

For the accuracy of any insect inserted in our catalogue, Mr. Logan and I conjointly pledge ourselves, having rigidly refused every insect of doubtful origin; and in the few instances in which the species have not been observed by ourselves, we have attached the name of the entomologist who has captured them, and this not until we had personally communicated with him respecting them, and obtained his sanction for so doing.

A few insects still remain in the list of Mr. Stuart, unsupported by subsequent observation. They are *Polyommatus Egon*, *P. agestis*, *Argynnis Euphrosyne*, *Vanessa C-album*, *Satyrus Megæra*, *Sphinx Ligustri*, *Smerinthus Tilice*, *Spilosoma Lubricipeda*, *Notodonta Camelina*, *Pygæra Bucephala*, *Xanthia citrargo*, *Hadena Chenopodii*, *Plusia bractea*, *Biston Betularia*. With regard to some of these, as *S. Ligustri*, *V. C-album*, *N. Camelina*, etc., it may be doubted whether they have not been erroneously inserted by Mr. Stuart; while others, as *Pygæra Bucephala*, *Plusia bractea*, *Biston Betularia*, etc., having been taken in some instances abundantly, in the neighbouring counties, or at least in Scotland, may be expected again to occur in this district. The length of time, often a great number of years, which has frequently been observed to occur between the abundant appearance of a particular species, and the comparative rarity of its presence or entire disappearance, is a curious subject to

investigate. The fact that chrysalides occasionally pass one or two successive winters in a torpid state, until a warm, or at least a favourable, season develops the perfect insect, is quite insufficient to explain the phenomenon.

Four years ago *Spalotis ravidus*, *S. augur*, and *S. pyrophila*, were abundant in my own garden, as was also *Polia advena*, *Aglossa pinguinalis*, *Alucita polydactyla*, all of which have since been extremely scarce, and during the past year, although looked for, altogether wanting. In like manner, a few years ago, (1846,) *Sphinx convolvuli*, was very abundant throughout the country, though far from being a common insect either before or since that time. This sort of periodicity in the appearance and non-appearance of insects in particular seasons, is an interesting and important subject to investigate; and is an additional reason, if one were wanting, for keeping exact registers, not merely of the rarer insects, but of the commonest and most abundant kinds. Why, for example, *Plutella Cruciferarum* should in general be a common insect, and has in the past year suddenly become, by its swarms, a destructive pest, I am quite unable to determine; but how greatly would the value of Entomology be enhanced, could we with certainty predict the prevalence of a particular insect, and thus enable the farmer to meet the attacks of his small but often most destructive enemy.

For reasons I have already alluded to it will not be supposed that in presenting this list, Mr. Logan or myself do so in the idea that it affords a perfect catalogue for the shire of Edinburgh. A life-time of observation would not insure this, as every year brings to light species which are either altogether new, or were only believed to be met with in the more genial climate of England. We have indeed delayed the publication of this list during the last two years owing to the numerous additions we have found it necessary to make, and it is now only the feeling that no length of time will enable us to comprise all the insects which may be found in this neighbourhood, that we have determined no longer to delay. As it is, it is the result of many years careful observation; and for its accuracy we feel we have little to fear from future investigations. Perhaps we have been a little hastened in our intentions to publish this list by the appearance of Mr. Gray's interesting catalogue of the Lepidopterous insects of the adjoining districts; we observe however, that although his observations comprise a far wider range of country than our own, the number of species noticed is far less. I almost regret that our district had not comprised the circuit of ten miles around Edinburgh, rather than the mere arbitrary boundary of Midlothian; we have been debarred, for example, from including many interesting species in our catalogue taken at Burnt Island, and the opposite coast, as well as at Guillane Links, by the arrangement we have made, and to which when once determined upon, we made it a point strictly to adhere. The frequent reference made to "Duddingston and Arthur's Seat" by Mr. Logan, and "Balgreen and Corstorphine Hill" by myself, will be sufficiently explained by the circumstance that the two districts thus frequently alluded to form our respective places

of residence. Mr. Logan enjoying the fine opportunities afforded by the vicinage of Arthur's Seat and Duddingston Loch, on the east side of Edinburgh, and I the less varied ground of Corstorphine Hill, on the west.

W. H. LOWE.

RHOPALOCERA.

- Pieris, Boisd.*.....—*Brassicæ*, Large White B.: abundant, especially in gardens.
- “ “ —*Rapæ*, Small White B.: abundant, especially in gardens.
- “ “ —*Napi*, Green-veined White B.: abundant in fields and road-sides.
- Anthocaris, Boisd.*...—*Cardamines*, Orange-tip B.: local, rather scarce, Duddingston, Mr. Logan; Musselburgh, Mr. J. Howden; Balgreen, Dr. Lowe.
- Chrysophanus, Hub.*—*Phlœas*, Small copper: abundant everywhere.
- Polyommatus, Steph.*—*Alsus*: rare, Dr. Greville.
- “ “ —*Egon*: in Mr. Stuart's list published 1808, in the “*Wernerian Transactions*.”
- “ “ —*Alexis*, Common Blue: abundant everywhere.
- “ “ —*Artaxerxes*, Scotch Argus: abundant on Arthur's Seat, sparingly on the Pentland Hills, also on the shores of the Firth occasionally, Cramond; appears in May, and is found till August.
- Argynnis, Och.*.....—*Euphrosyne*, Pearl-bordered Fritillary: Mr. Stuart's list.
- Vanessa, Och.*.....—*Cardui*, Painted Lady B.: scarce, Arthur's Seat, Pentland Hills, Balgreen.
- “ “ —*Atalanta*, Red Admiral B.: abundant in particular seasons.
- “ “ —*Io*, Peacock B.: very scarce, Duddingston, Mr. Logan; Braid Hills, Dr. Stark; Balgreen, 1848, Dr. Lowe.
- “ “ —*Urticæ*, Small Tortoise-shell B.: everywhere abundant.
- “ “ —*C-album*, Comma B.: in Mr. Stuart's list.
- Satyrus, Boisd.*.....—*Semele*, Grayling B.: abundant on Arthur's Seat.
- “ “ —*Janira*, Meadow-brown B.: very common.
- “ “ —*Megæra*, Wall B.: in Mr. Stuart's list.
- “ “ —*Ægeria*, Speckled Wood B.: not unfrequent in woods.
- “ “ —*Hyperanthus*, Ringlet B.: abundant, but local.
- “ “ —*Pamphilus*, Small Heath B.: abundant on Pentland Hills, less common on Arthur's Seat.
- Pamphila, Steph.*.....—*linea*, Small Skipper B.: Mr. Wilson; in Mr. Stuart's list.
- “ “ —*sylvanus*, Large Skipper B.: botanical gardens, Mr. Wilson; Stuart's list.

HETEROCERA.

SPHINGES.

- Macroglossa*, *Och*....—*stellatarum*: Duddingston, Mr. Logan; Morningside, Mr. Wilson; also occasionally in the botanical gardens.
- Chærocampa*, *Dup*...—*porcellus*: Arthur's Seat, Mr. Logan.
- “ “ —*Elpenor*: Salisbury Craigs, Mr. Duncan, Mr. Wilson.
- “ “ —*celerio*: Hopetown, Mr. J. C. Howden, September, 1848.
- Deilephila*, *Och*.....—*Galii*: Mr. Duncan, Cramond.
- Sphinx*, *Linn*.....—*Pinastri*: Ravelston Wood, Dr. Leach.
- “ “ —*Convolvuli*: Duddingston, Mr. Logan; Balgreen, Dr. Lowe; unusually abundant in 1846.
- “ “ —*Ligustri*: Mr. Stuart's list.
- Acherontia*, *Och*.....—*Atropos*: Duddingston, Mr. Logan; Morningside, Mr. Wilson. It has several times been seen in the neighbourhood of Edinburgh.
- Smerinthus*, *Lat*.....—*Tiliæ*: in Mr. Stuart's list.
- “ “ —*Populi*: not unfrequent. Mr. Logan, Dr. Lowe.
- Anthrocera*, *Scop*....—*Filipendulæ*: Salisbury Craigs, Dr. Stark, Mr. Wilson.

BOMBYCES.

- Euchelia*, *Boisd*.....—*Jacobææ*: Musselburgh, (Guillane Links.)
- Lithosia*, *Boisd*.....—*rubricollis*: Dalmeny Park, Mr. Robert Greville.
- Nudaria*, *Haw*.....—*mundana*, Craig Millar Castle, Arthur's Seat, Mr. Logan.
- Euthemonia*, *Steph*...—*russula*: once taken to Mr. Duncan.
- Arctia*, *Steph*.....—*caja*: not unfrequent.
- Phragmatobia*, *Steph*—*fuliginosa*: Pentland Hills, Slateford, H. Clarke, Esq.
- “ “ —*lubricipeda*: neither Mr. Logan nor myself have ever seen this insect in Scotland, though so abundant in England. It stands, however, in Mr. Stuart's list.
- “ “ —*Menthastri*: frequent.
- Orgyia*, *Och*.....—*antiqua*: occasionally.
- Lasiocampa*, *Steph*...—*Rubi*: Pentland Hills.
- “ “ —*Quercus*: Pentland Hills.
- Saturnia*, *Schr*.....—*Carpini*: Pentland Hills.
- Hepialus*, *Fab*.....—*Humuli*: everywhere.
- “ “ —*sylvinus*: Arthur's Seat, Mr. Logan; Balgreen, Dr. Lowe.
- “ “ —*Lupulinus*: extremely common.
- Cilix*, *Leach*.....—*spinula*: Queen's Ferry, Dr. Greville.
- Cerura*, *Steph*.....—*furcula*: the larva taken by Mr. Logan, on Pentland Hills.
- “ “ —*vinula*: not unfrequent.
- Notodonta*, *Och*.....—*Camelina*? in Mr. Stuart's list.

Notodonta, *Och*.....—*Dictæa*: near Leith, Mr. Logan; Musselburgh, Mr. J. C. Howden.

“ —*Dromedarius*: larvæ found on a birch tree, Pentland Hills, Mr. Logan.

Pygæra, *Boisd*.....—*Bucephala*: in Mr. Stuart's list.

NOCTUÆ.

Semiphora, *Guen*....—*Psi*: common everywhere; a single very dark specimen taken by Dr. Lowe, suggested the possibility of its being the next species, namely, *Tridens*, but this without the larva cannot be determined.

Acronycta, *Och*.....—*Rumicis*: Borthwick Castle, Mr. Logan; Queen's ferry, Dr. Greville.

Bryophila, *Tr*.....—*perla*: very abundant on walls, rocks, and the trunks of trees.

Caradrina, *Och*.....—*cubicularis*: very common, including variety *Superstes*.

“ “ —*blanda*: Arthur's Seat, Mr. Logan.

Leucania, *Och*., *Steph*....—*lythargyria*: Arthur's Seat and Duddingston, Mr. Logan.

“ “ —*conigera*: Duddingston, Mr. Logan; Balgreen, Dr. Lowe.

“ “ —*impura*: Duddingston, Mr. Logan.

“ “ —*palleus*: abundant everywhere.

Nonagria, *Tr*.....—*fulva*: Duddingston, Mr. Logan; Pentland Hills, Dr. Lowe.

Gortyna, *Tr*.....—*flavago*: a single specimen taken near Rosslyn, Mr. Duncan.

Hydræcia, *Guen*.....—*micæa*: Duddingston, Mr. Logan.

“ “ —*Petasitis*: a single specimen taken by Dr. Lowe while basking in the sun at mid-day, Balgreen, 1849.

“ “ —*leucostigma*: Duddingston, Dr. Greville, Mr. Logan.

“ “ —*nictitans*: Pentland Hills, Mr. Logan.

Miana, *Steph*.....—*literosa*: Duddingston, Mr. Logan; Corstorphine Hill, Dr. Lowe.

“ “ —*fasciuncula*, Duddingston, Mr. Logan; Corstorphine Hill, Dr. Lowe: abundant.

“ “ —*strigilis*: Duddingston, Mr. Logan.

“ “ —*arcuosa*: Duddingston, Mr. Logan.

Apamea, *Och*.....—*didyma*, including varieties *Oculea*, *I nigra*, *Rava*, *Furca*: common.

“ “ —*unanimis*: Duddingston, Mr. Logan; Balgreen, Dr. Lowe.

“ “ —*gemina*: not unfrequent.

Luperina, *Boisd*.....—*testacea*: Arthur's Seat; common.

“ “ —*basilinea*: extremely common.

“ “ —*infesta*: Duddingston; common.

“ “ —*furva*: Arthur's Seat, Mr. Logan.

Xylophasia, *Steph*....—*rurea*, including variety *combusta*: common.

Xylophasia, *Steph*...—*lythoxylea*: not unfrequent.

“ “ —*polyodon*: everywhere.

Triphaena, *Och*.....—*pronuba*: extremely common.

“ “ —*orbona*: also very common.

“ “ —*fimbria*, a single specimen taken by Mr. J. C. Howden,
at Duddingston, 1847.

“ “ —*janthina*: Duddingston, Mr. Logan; Balgreen, Dr.
Lowe.

Segetia, *Steph*.....—*xanthographa*: very common.

Rusina, *Steph*.....—*tenebrosa*, Duddingston, Mr. Logan; Cramond, Dr.
Lowe.

Noctua, *Boisd*.....—*umbrosa*: Duddingston, Mr. Logan: scarce.

“ “ —*bella*: Duddingston, Mr. Logan.

“ “ —*baja*: not unfrequent at Duddingston, Mr. Logan.

“ “ —*festiva*: Duddingston, Mr. Logan; scarce.

“ “ —*Dahlii*: Dr. Greville.

“ “ —*brunnea*: Duddingston, Mr. Logan; rather scarce.

“ “ —*C. nigrum*: Duddingston, Mr. Logan; Balgreen, Dr.
Lowe: scarce.

“ “ —*Hebraica*: Pentland Hills, taken twice at Balgreen,
Dr. Lowe.

Chersotis, *Boisd*.....—*pecta*: Duddingston, Mr. Logan.

“ “ —*porphyrea*: Pentland Hills, Mr. Logan; Corstorphine
Hill, Dr. Lowe.

“ “ —*Haworthii*: Duddingston, Mr. Logan.

Spælotis, *Boisd*.....—*augur*, common.

“ “ —*ravida*: Balgreen, in some seasons not unfrequent, Dr.
Lowe.

“ “ —*pyrophila*: Dr. Greville; Duddingston, Mr. Logan; Bal-
green, Dr. Lowe: very rare.

“ “ —*cataleuca*: Salisbury Craigs and Arthur's Seat.

Agrotis, *Och*.....—*suffusa*: not unfrequent.

“ “ —*segetum*: very common.

“ “ —*corticea*: Arthur's Seat, Mr. Logan.

“ “ —*exclamationis*: common.

“ “ —*fumosa*: common.

“ “ —*obelisca*: Duddingston, Mr. Logan; Balgreen, Dr. Lowe.

“ “ —*putris*: Duddingston, Mr. Logan.

“ “ —*cursoria*: Dr. Greville.

“ “ —*tritici*: Dr. Greville.

Cerapteryx, *Curt*.....—*graminis*: common.

Heliophobus, *Boisd*...—*popularis*: a single specimen taken on Arthur's Seat,
Mr. Logan, 1849.

Tæniocampa, *Guen*...—*gothica*: common.

- Taeniocampa*, *Guen.*—*stabilis*: not unfrequent.
 “ “ —*instabilis*: not unfrequent.
- Orthosia*, *Guen.*.....—*Lota*: a single specimen taken at Duddingston, Mr. Logan.
 “ “ —*congener*: Arthur's Seat, Mr. Logan; rare.
- Anthocelis*, *Guen.*....—*lunosa*: frequent on hilly ground.
 “ “ —*litura*: very common.
- Scoliapteryx*, *Guen.*....—*libatrix*: a single specimen taken at Duddingston, Mr. Logan.
- Euperia*, *Guen.*.....—*trapezina*, common.
- Xanthia*, *Och.*.....—*ferruginea*: very common.
 “ “ —*cerago*: Ravelrig Bog, Mr. Alexander Logan.
- Glæa*, *Steph.*.....—*Vaccinii*: abundant at Duddingston.
- Scopelosoma*, *Curt.*....—*Satellitica*: Duddingston, Musselburgh, Balgreen, Dr. Lowe.
- Miselia*, *Tr.*.....—*Oxyacanthæ*: Duddingston; tolerably abundant.
- Chariptera*, *Guen.*....—*Aprilina*, Duddingston, a caterpillar taken on Corstorphine Hill by Dr. Lowe.
- Diantheicia*, *Boisd.*....—*capsincola*: Duddingston, Mr. Logan; Corstorphine Hill, Dr. Lowe: rare.
 “ “ —*Cucubali*: Queensferry, Dr. Greville; Duddingston, Mr. Logan.
- Polia*, *Tr.*.....—*Chi*: very common; variety *Olivacea* taken at Duddingston by Mr. Logan, and likewise specimens at Balgreen, Dr. Lowe.
- Hadena*, *Och.*.....—*Brassicæ*: very common.
 “ “ —*adusta*: not unfrequent.
 “ “ —*oleracea*: common, particularly on the coast.
 “ “ —*thalassina*: common.
 “ “ —*dentina*: Arthur's Seat, Mr. Logan; Corstorphine Hill, Dr. Lowe.
 “ “ —*glaucia*: occasionally met with.
 “ “ —*protea*: very common.
 “ “ —*Splendens*: Pentland Hills, Mr. Logan.
 “ “ —*Chenopodii*: Mr. Stuart's list.
- Aplecta*, *Guen.*.....—*advena*: rather common a few years ago.
 “ “ —*occulta*: once taken at Duddingston by Mr. Logan; four specimens taken on Corstorphine Hill by Dr. Lowe, 1850.
- Phlogophora*, *Tr.*....—*meticulosa*: common.
- Calocampa*, *Steph.*....—*vetusta*, Duddingston, Mr. Logan; Balgreen, Dr. Lowe: rare.
 “ “ —*exoleta*: common.
- Cucullia*, *Schr.*.....—*umbratica*: Duddingston, Mr. Logan; Balgreen, Dr. Lowe: scarce.

- Cucullia, Schr.*.....—*Chamomillæ*: a single specimen taken by Dr. Lowe at Balgreen, April, 1851.
- Anarta, Och.*.....—*Myrtilli*: Pentland Hills, Balgreen, Dr. Lowe.
- Plusia, Och.*.....—*Gamma*: very common.
- “ “ —*Iota*: scarce.
- “ “ —*inscripta*: rather rare.
- “ “ —*Festucæ*: Duddingston; rare.
- “ “ —*bractea*: in Mr. Stuart's list.
- “ “ —*chrysis*: rather rare.
- Abrostola, Och.*.....—*Urticæ*: Duddingston, Mr. Logan; rare.
- Nænia, Tr.*.....—*typica*: not unfrequent.
- Philopyra, Guen.*.....—*Tragopogonis*: very common.
- Mania, Tr.*.....—*Maura*: Banks of the Esk, Mr. Logan; Water of Leith, Dr. Lowe.
- Euclidia, Och.*.....—*mi*: Arniston, Mr. J. C. Howden; Cramond, Dr. Lowe.

PYRALES.

- Pyrausta, Schr.*.....—*cingularis*: Arthur's Seat.
- “ “ —*ostrinalis*: Pentland Hills, Arthur's Seat.
- “ “ —*cespitalis*: Pentland Hills, Arthur's Seat.
- Pyralis, Linn.*.....—*farinalis*: Duddingston, Mr. Logan; Balgreen, Dr. Lowe.
- Aglossa, Lat.*.....—*pinguinalis*: abundant in 1847 at Balgreen, but not observed since, Dr. Lowe.
- Hydrocampa, Lat.*.....—*Nymphæalis*: common.
- “ “ —*Potomogalis*: common.
- Scopula, Schr.*.....—*etialis*: common.
- Pionœa, Guen.*.....—*forficalis*: very common.
- Botys, Lat.*.....—*fusealis*: not unfrequent.
- “ “ —*Urticalis*: Duddingston, Mr. Logan; rare.
- Hypena, Schr.*.....—*proboseidalis*: common everywhere.

(To be continued.)

ORNITHOLOGICAL NOTES.

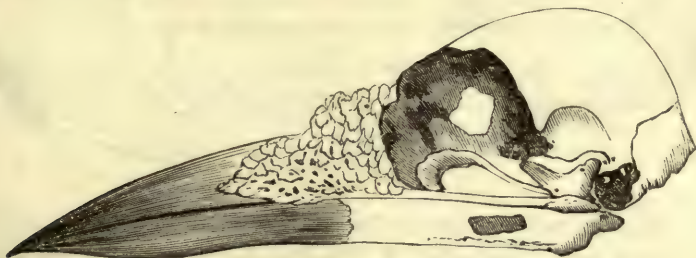
BY J. O. HARPER, ESQ.

Occurrence of the Caspian Tern, (Sterna Caspia,) at Yarmouth.—Mr. Knight, Taxidermist, of this city, received, for preservation, from the above-mentioned town, on the 14th. of August of this year, a fine adult male specimen of the Caspian Tern, in full summer plumage.

Occurrence of the Avocet, (Recurvirostra avocetta,) at Yarmouth.—Mr. Knight also received on Thursday, June 12th., two fine specimens of this bird in good plumage.

Occurrence of the Bar-tailed Godwit, (Limosa rufa,) in Suffolk.—I shot on the 18th. of October, a fine male specimen of this bird on Lowestoff beach. This is not a very common bird either in Norfolk or Suffolk.

Note on the Rook, (Corvus frugilegus.)—There are various opinions respecting the tuberculous growth, or abrasion as it is called, at the base of the bill of this bird. Is it natural or caused by abrasion—by many it is thought the latter. Mr. Macgillivray states in his work on "British Birds," vol. 1, page 551, "It is only after the young have been abroad for some weeks that these parts become to be abraded, leading to the supposition that it is the result of digging with its bill in exploring for provender." This gentleman, to whom I feel greatly indebted for valuable information from the pages of his work, is very rarely wrong; probably I may have put a wrong construction upon his statement, if so I plead his pardon. The Rev. F. O. Morris, in his work now publishing, (which I trust will find its way into the hands of every inquiring ornithologist,) gives it as his opinion that it is natural and not caused by abrasion. To confirm the latter gentleman's opinions, I forward the particulars copied from my Journal. I kept one of these birds, several years back, which I obtained when fully-fledged and confined it in a room with some Brown Owls. When first it came into my possession the base of the bill and nostrils were covered with stiff feathers. After having it for six weeks the feathers were replaced by an early development of this so-called abrasion, inclining to a dirty flesh-colour; but after keeping it for twelve months I was obliged to destroy it for its quarrelsome disposition. At that time there was a full development of this tuberculous growth; the bird never having left its place of confinement. The accompanying engraving is a figure of the skull now in my possession, with the horny covering of the mandibles and tuberculous growth left on.



Occurrence of the Great Snipe, (Scolopax major,) in Norfolk.—I shot on November 6th., at Rockland, a specimen of this bird. I had never been able to procure a specimen before, therefore I think it rather uncommon. Mr. Yarrell states in vol. 3, page 19, that it is not uncommon in autumn in Norfolk.

Note on the nesting of the Domestic Pigeon.—I beg to state from experience, and in confirmation of communications received from your various correspondents on this subject, that a pair of Pouters in my possession have for several years supplied their nests with small twigs from an adjoining garden, although furnished with straw for that purpose.

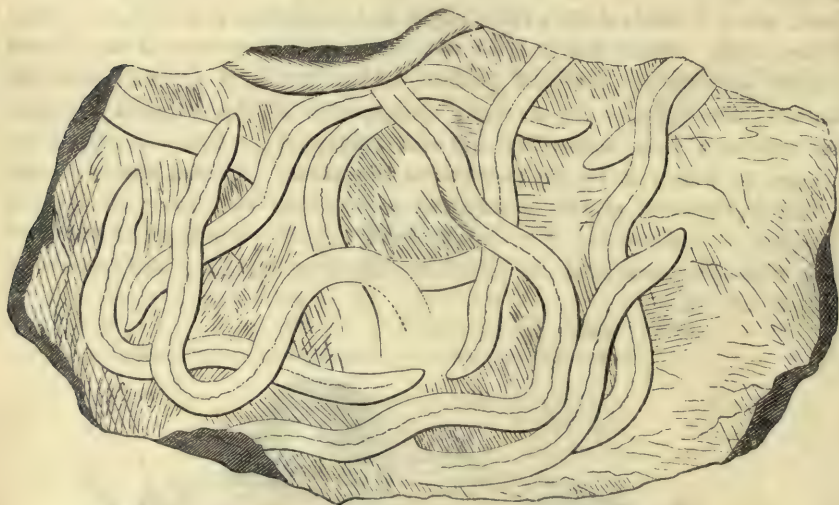
DEPARTURE OF THE FAMILY HIRUNDINIDÆ FROM NORFOLK, 1851.

Swift, (<i>Cypselus apus</i> ,)	August 27th.	Wind---north-west.
Sand Martin, (<i>Hirundo riparia</i> ,)	September 21st.	Wind---west.
Martin, (<i>Hirundo urbana</i> ,)	October 5th.	Wind---south-west.
Swallow, (<i>Hirundo rustica</i> ,)	October 12th.	Wind---west. Weather--warm.

Norwich, November 11th., 1851.

FOSSIL MARINE WORMS IN
THE FLAGSTONE BEDS OF PATELEY-BRIDGE, YORKSHIRE.

BY JOHN DIXON, ESQ.



SINCE the publication of Mr. Wood's interesting remarks on the Fossil Marine Worm from Wensleydale, I have had the good fortune to fall in with another variety of *Dorsibranchiate annelide* occurring in the flagstone beds of Pateley-bridge; a deposit similar in general composition to those of Wensleydale. The fossils differ in character and distribution. The Wensleydale specimens are widely scattered throughout the strata, and are of great length, while those of Pateley are generally found in confused masses on the surface, very distinctly developed, and clearly indicative of organic origin. The perfect specimens are from eighteen inches to nearly two feet long, with a circumference

of about two inches. In general character they much resemble the *Euniceæ*, or Marine Worms of the tropics; and, like this class, are free from any distinct annulations or markings, with the exception of a singular dorsal ridge. There is no appearance of any swimming appendage; the creature seems more fitted for crawling about the fine mud of a shallow salt-water lagoon. Traces of vegetable impressions, evidently aquatic, are discernible in the same strata. The common Lug Worm, (*Arenicola piscatorum*), of our own coast, furnishes us with a good example of this class.

The discovery of this Annelide I trust will lead to more extended researches in a field of great interest, which will doubtless repay the persevering geologists by the discovery of many new and interesting fossils, hitherto overlooked.

Leeds, December 19th., 1851.

Miscellaneous Notices.

Common Owl, (*Strix flammea*.)—Some years ago, as two lads were returning from Thelton to Diss on a fine summer's evening, their way led through a beautiful lane, with high fences on either side. Their unlooked-for presence in this seclusion, gave a momentary terror to a White Owl, as it was winging its way just over their heads, which caused it to drop the Mouse it had secured for its prey; but having recovered its self-possession, it wheeled round, darted down, and once more seized the little creature, which had fallen nearly two yards, and quickly resumed its noiseless flight. This fact was related to me by a gentleman, (one of the lads in question,) many years after, when I was delivering a lecture on Natural History before his workmen.—E. C. NUNN, Diss, Norfolk, December 22nd., 1851.

Bohemian Chatterer, (*Bombycilla garrula*.)—A pair of these beautiful birds, Bohemian Chatterers, a male and female, were shot on the Royden road, near Diss, January 30th., 1835, and were added to the collection of the late Mr. Dowding, Surgeon, Diss. In a note on page 29, Mr. Brown in his edition of "White's Selbourne," states that these birds always appear in flocks; but from what I can learn four or five is the largest number that has ever been seen together in Norfolk or Suffolk; more generally they are found in pairs, and sometimes singly.—Idem.

Bohemian Waxwing, (*Bombycilla garrula*.)—I beg to state, for insertion in "The Naturalist," that a bird of this species was shot near Cork a short time since.—EBLANA, Dublin, February 13th., 1852.

Note of the early occurrence of the Wryneck, in Devonshire.—On the 25th. of the present month, a fine specimen of the Wryneck, (*Yunx torquilla*), was obtained in the neighbourhood of Plymouth. The rarity of this bird in Devon, together with its early appearance, I think warrant a notice being given of its capture.—JOHN GATCOMBE, Wyndham Place, Plymouth, March 30th., 1852.

Occurrence of the Ortolan Bunting, (*Emberiza hortulana*), at Worthing.—One of these very rare visitors to England was shot on the 27th. of last month, close to the town of Worthing, in Sussex, and about a couple of hundred yards from the sea. It was a male, and in very good plumage. It has been capitally preserved, (for the collection of — Stephenson, Esq.,) by Mr. Cooper, of Radnor Street, St. Luke's, who shewed me the bird shortly after he received it.—W. F. W. B., London, May 6th., 1852.

Occurrence of the Hoopoe, (*Upupa epops*), near London.—Though not so rare a straggler here as the Ortolan, still this pretty bird appears so unfrequently as to make its capture worth record. A female specimen, in clean plumage, was shot at Whetstone, about seven miles north of London, on the 25th. ult. She was busy on the banks of a swampy piece of water, where she seemed to find plenty of food to her taste. Mr. Cooper, the naturalist above referred to, purchased the bird the same day, and was kind enough to send it for my inspection.—Idem.

*Singular situation for the nest of the Common Swallow, (Hirundo rustica).—*A few years since, a pair of Swallows built their nest in a corner of my brother's bed, although it was in constant use every night till the little builders had got up a good part of their dwelling, when bed and bed-room were set apart for their especial accommodation, the windows being left open day and night. In the nest built in this singular situation they reared five young ones, all of which left the nest at the usual time, but not until they had become quite tame. During the period of incubation, and until the young birds were fledged, the nest was visited daily by my brother and friends. The old birds appeared to like these visits, and would fly about the room twittering all the while with the greatest complacency. The following year they returned and built again in the same place and reared a young brood with the same success as before. On their return the third year the room being in use was closed against them. They continued twittering at the windows for some days, but at last took their departure and built in a shed at some distance from the house. They did not return the fourth year.—JN: P. D., Chesterfield, December 16th., 1851.

Occurrence of the Iceland and Glaucous Gull at Yarmouth.—Mr. Knight, Taxidermist of this city, received for preservation, on November 29th., a fine adult male specimen of the *Larus glaucus*; also a specimen of the Iceland Gull, (*Larus leucopterus*.) both of which were killed at Yarmouth.—J. O. HARPER, Norwich, February 11th., 1852.

*Variety of the Common Snipe, (Scolopax gallinago).—*Mr. Sayer, of this city, received for preservation a curious and very beautiful variety of the Common Snipe, which was shot within the last fortnight by Mr. Anthony Thomas, at Guestwick. It differed wholly in colour from the usual plumage, being of a delicate buff, with darker markings on the back and wings; the bill and legs were of a pinkish hue instead of a green.—Idem.

Occurrence of three Polish Swans and a Northern Diver, near Lynn.—Mr. Glason, of that place, received on the 11th. of December, three fine specimens of the Polish Swan, (*Cygnus immutabilis*;) also a Great Northern Diver, (*Colymbus glacialis*.) The former were killed out of a flock of nine at Ingoldisthorpe; the latter at Thornham.—Idem.

Heronry.—There is a small Heronry at Gainford, in the county of Durham.—ROBERT CALVERT, Bishop Auckland, January 5th., 1852.

*The Ringed Plover, (Charadrius hiaticula).—*A young Ringed Plover was shot on Looe Island on the 4th. of November, with an additional toe springing from the inside of the right leg, attached to the knee as far as the second joint; no other peculiarity existed, and the bird was very fat.—CLEMENT JACKSON, East Looe, December 20th., 1851.



*Curious nest of the Blackbird, (Turdus merula).—*A laundry-maid at Lady B--'s, had laid out a quantity of fine linen, on the grass-plot, for bleaching. Amongst this miscellaneous collection was a lady's cap, bedecked with very expensive lace. Towards night-fall the linen was collected, and the cap found missing; a vain search commenced, inquiry was instituted, but no trace of the missing article could be discovered. Well, the matter blew over, and for a time was forgotten, until the gardener, having occasion to dress a thick hedge of yew, discovered the theft. A Blackbird, in constructing its nest, had purloined the cap which formed a portion of the outer materials, curiously interwoven

with coarse fibres and grass. No nest could have been more beautiful. It was removed, put under a glass case, and formed an object of great interest in the good old lady's drawing-room.—JOHN DIXON, Leeds, December 19th., 1851.

*A Pied Blackbird, (Turdus merula).—*A beautiful specimen of a mottled Blackbird was taken at Green Bank, near Plymouth, in December last, by a boy placing a bit of lean beef on a fish-hook: the bait proved successful. The bird has been stuffed by Mr. Mutton, of Plymouth.—JOHN BANKER, Stonehouse, January 17th., 1852.

Curious Hen's Egg.--I send, in case you should deem it of any interest, a description of a



Natural Size.

Hen's egg, laid in my poultry-house last year. Length, one inch and one-eighth; diameter at large end, five-eighths of an inch; diameter at small end, half-an-inch: the entire shell was very much granulated. In blowing it, a very small quantity of albumen was obtained; on the needle being again applied, it came in contact with some substance which prevented its reaching the other end of the shell. I consequently broke the shell, and in the interior found another egg without a shell, but having an exceedingly thick and tough membrane; so tough was it, that the needle which had pierced the shell had no effect on it, nor could it be cut through but with a sharp penknife. The internal egg corresponded in shape with the outer one, save that it was rather more obtuse at the smaller end, and the albumen was of a much more solid nature. The length was one inch, and the diameter three-eighths of an inch. Neither egg had any yolk.--C. M. O.

The Apollo Butterfly, (*Doritis Apollo*).--In our last number, page 110, is a notice of the occurrence of this very rare Butterfly, near Falmouth. Subsequent inquiries, however, by Mr. Cocks, prove that the first-named specimen was purchased at Harrow, and *probably* is a foreign one. The second was taken at Carelew, about twenty-five years ago, but was then supposed to have come over in the *chrysalis* state, along with some earth containing plants collected in Italy. The first specimen was exhibited in a collection of insects labelled as British. We greatly regret the necessity for this notice, but we deem it far better to insert these lines, than to allow a *known* erroneous statement to remain. Sir C. Lemon's specimen may however still be a genuine British one.--B. R. M.

Occurrence of Vanessa Antiopa, etc., in *Berwickshire*.--Observing in "The Naturalist," for May, 1851, the fact mentioned that a Locust had been captured at Lauder, Berwickshire; and being on a visit to that locality a few days ago, I went to see a miscellaneous collection formed by one of the Earl of Lauderdale's shepherds, named "Wattie Simpson," who exhibited to me two specimens, which he had captured on Lauder Common. He likewise shewed me a specimen of the Camberwell Beauty, (*Vanessa Antiopa*), and of the dark green Fritillary, (*Argynnis Aglaia*), both captured by him in that vicinity. I should feel exceedingly obliged to any of your correspondents who would be kind enough to inform me of any other localities in Scotland, where the *Vanessa Antiopa* has been seen. My friend, Daniel M. Falconer, Esq., possesses a specimen of the Painted Lady, (*Cynthia cardui*), captured by him on the wing so late as the 28th. of October.--JOHN K. WILSON, Edinburgh, March 10th., 1852.

Vanessa Antiopa taken near Lincoln.--As you wish to receive any information respecting the rarer British Butterflies, perhaps it may be worth while to mention that four years ago a fine Camberwell Beauty, (*Vanessa Antiopa*), was taken in a garden in this city; and several others have been at various times seen and taken flying about the willows in the fenny districts in this neighbourhood. In the year 1848, a white variety of the Common Copper, (*Lycæna Phleas*), was taken by myself in a large fir wood at Skellingthorpe, about three miles from here; there were vast numbers of the ordinary red colour about, which kept incessantly flying at the white one whenever it settled, and beating it away from the flowers. The Comma, (*V. C-album*), is common here in the same wood, and has two broods.--FREDERICK M. BURTON, Lincoln, March, 1852.

MILDNESS OF THE SEASON.

The Peacock Butterfly, (*Vanessa Io*).--On Monday, the 2nd. of February, inst., a gentleman, on his way to Blandford, saw a specimen of this Butterfly on the wing.--JOHN GARLAND, Dorchester, February 11th., 1852.

The Primrose, (*Primula vulgaris*).--Several wild Primroses were gathered in flower in Mill Lane, Cerne, on Wednesday, the 28th. of January last, which is much earlier than usual.--Idem.

Note on Abraxas grossulariata.--I think it is but right, in order to confirm the assertion of J. Mc'Intosh, Esq. relative to "*Abraxas grossulariata*," (see vol. i., page 174, paragraph four of "The Naturalist,") that I do not believe a year has passed during the last ten years, in which I have not had the caterpillar of *Abraxas grossulariata*, both in this country and on

the Continent, in the months of July, August, and September, but also in October, November, and December. To this assertion I defy contradiction, and should only say to any one who did so, that he has a great deal to learn in the study of entomology. You may make whatever use you please of this.—*BOMBYX ATLAS*, in a letter to the Editor; Tottenham, October 11th., 1851.

On attacking of Pupæ by Ichneumon Flies.—That the pupæ of insects are sometimes attacked by Ichneumons, when opportunity presents, as in the case mentioned by your able correspondent in "The Naturalist," vol. ii. p. 58, cannot, I think, be denied; yet I do not remember ever having seen any other *modus operandi* recorded, than by the laying of the egg in the larva by the ovipositor of the parent fly. But in a case I lately met with, there are very strong proofs that this method is not the only one resorted to, but that the chrysalis is sometimes destroyed by the parasitic larva eating its way through the cocoon, and exterior integument of the enclosed Pupa. While out on an entomological ramble a short time since, I found on a post the chrysalis of a moth, which proved to be that of *Acronycta Rumicis*, (The Bramble,) and which, as was evident from its general dry and stiff appearance, I directly perceived to be Ichneumonized. On examining it, I discovered on the outside of the cocoon, which in this instance is formed of longitudinal pieces of dried grass, a small round hole, that had evidently been eaten through by the larva of some insect, and on taking out the chrysalis, in that part of it which lay exactly opposite the hole in the outer case, I found a corresponding one rather smaller; while in the interior, on breaking it open, I exposed to view the pupa of an Ichneumon Fly, which is now rapidly approaching its full state. These are the facts as I found them, and they prove, I think, indisputably that the chrysalis, after its change into that state from the larva, was attacked by the Ichneumon Fly, which, either from its being unable to pierce the covering which enclosed its victim, or from its usual natural habits, had laid its egg on the cocoon, and that on the larva being hatched, it had eaten its way through the covering and outer case of the enclosed chrysalis, and so accomplished its destruction. The holes in question, I must observe, are certainly not caused by the escape of a fly from the inside, as is the case with the parasites of *Saturnia Pavonia-minor* and others, several of which are often found together in one chrysalis, and which, when fully developed, emerge through a hole they make in the side, as the parasite I here allude to is of a large size, and fills the entire cavity of the chrysalis case.—F. M. BURTON, Lindum House, Lincoln, April 20th., 1852.

Muller's Topknot, (*Rhombus hirtus*).—A specimen of this fish was taken at Redcar, on the 27th. of April last. Its length was eight inches, and its depth four inches and a half.—DANIEL FERGUSON, Redcar, April 30th., 1852.

The Mistletoe, (*Viscum album*).—At page 154, vol. i. of "The Naturalist," in the interesting article on the Mistletoe, by Mr. McIntosh, I see he mentions seven instances of this parasite growing on the *Lime*. Allow me to add another, namely, on one forming a part of a noble avenue in Bramhill Park, Hants, the seat of Sir T. Cope. There is also a large bunch of it on a *White Poplar* in this immediate neighbourhood, two miles from Glastonbury.—R. E. MORRES, Ashcott, Glastonbury, November 6th., 1851.

Marsh Marigold, (*Caltha palustris*).—A correspondent in your last states that he has never found this plant in flower later than May. I have gathered it on the banks of the River Ouse, in Bedfordshire, as late as the latter end of September.—S. ARTHUR SEWELL, Stamford Hill, February 14th., 1852.

Reviews.

Flora Tottoniensis; A Catalogue of the Flowering Plants and Ferns growing wild in the vicinity of Totnes. By S. HANNAFORD, JUN. London: LONGMAN. p. p. 38.

THE value of local Floras or Faunas is perhaps only *duly* appreciated by those who write on either subject generally; for instance, no general Flora of

England would be worth anything unless the writer had access to hosts of local Floras, whether published or unpublished. To those therefore who publish a carefully prepared Flora the gratitude of all naturalists is due. That Mr. Hannaford has executed his work well and carefully, we have only to refer to the work itself, which contains the habitats of five hundred plants, four hundred of which were fixed from the personal observation of the author. In addition to the habitat, the time of flowering is given, which will be a great assistance to local collectors, as well as to any one writing on geographical botany.

The Flora is well printed on good paper, and has a margin wide enough for a short note or two. We trust that many of our readers may be induced to order this little work, which, from the low price at which it has been published, must require a large sale to cover even the cost of printing.

Drops of Water; their marvellous and beautiful inhabitants displayed by the Microscope. By AGNES CATLOW, Author of "Popular Conchology," "Popular Field Botany," Etc. With coloured plates. London: REEVE AND BENHAM. p. p. 194.

HAVING introduced Miss Catlow's works to our readers last month, we have great pleasure in calling their attention now to another of her worthy and successful endeavours to popularize Natural History. Having ourselves worked a good deal with other "drops" of water, we can state from our own knowledge that the figures given of the Animalculæ are good and accurate, and such as will readily enable the student to recognise any of them when seen in examining stagnant water by the microscope. To us the study of nature, by the aid of the microscope, has been an unfailing source of gratification and instruction, and we gladly hail Miss Catlow as a valuable assistant in inducing others to take up one of our favorite studies.

The first portion of the book is occupied with introductory remarks, explaining the habits and economy of Animalcules, with a short outline of the principles of their classification. The author then proceeds to describe the forms seen in the first "Drop," which contains the simplest forms, and next those in the second "Drop," containing others of a higher organization, and so on till those highest in the scale of Infusory animalcules are brought before the reader. This plan is a very good one, and will give the beginner an accurate general idea of the classification of these minute and wonderful creatures.

Many very interesting particulars, relating to the different creatures described, are given, which cannot fail to be read with pleasure by the young student, who we trust will thus be led to work out more fully the innumerable wonders of the "New World," as revealed by a good Achromatic Microscope. No one can ever regret taking up so mentally healthy a recreation.

Miss Catlow deserves the encouragement which we trust she will receive by an extensive circulation of this elegant and useful little work.

Popular British Entomology, containing a familiar and technical description of the insects most common to the various localities of the British Isles. By MARIA E. CATLOW. With sixty-nine coloured figures. London: REEVE AND BENHAM. p p. 269.

MISS M. CATLOW commences her pleasant task by giving a short outline explanatory of the different parts and organs of insects, which must be known and understood before any classification of specimens can be made. She next gives a full account of all the families into which the various orders of insects are divided, by means of which the learner may classify his captures into groups or families. Next comes a description of a considerable number of genera and species, by which most of the common insects may be correctly named; and as all the Butterflies are included, those which usually *first* engage the attention of the young student may all be named. The coloured figures are very good, and will be a great assistance to those commencing the study of Entomology. Directions for collecting, preserving, and arranging insects are also given; and a concluding chapter on the benefits and injuries received from the insect tribes, with some account of fossil species will be read with much interest. We much regret that the small amount of space at our disposal for reviews obliges us to refrain from any extracts; but we cannot conclude these few remarks without expressing our gratification that, like her sister, Miss M. Catlow has not hesitated to place the connexion between Religion and Natural History in its true light; on this account, as well as on the intrinsic merits of her little book, we can with much confidence recommend it to those commencing a study of Entomology, or who may wish to encourage any young friend to take up the science.

It will not supersede the necessity of other works, but it will pleasantly and usefully prepare the way for them.

The Querist.

Having kept tame Buzzards, (*Buteo vulgaris*,) for many years, I beg leave to say a few words in answer to the question, asked in the last number of "The Naturalist," *Do the Hawk tribe drink?* These birds are very fond of bathing, and I have remarked that when water is placed for them, they invariably perch on the edge of the bowl or pan and drink for a considerable time before attempting to wash themselves, throwing their heads far back after every sip. They also often go to the water solely for the purpose of quenching their thirst.—JOHN GATCOMBE, Wyndham Place, Plymouth, May 4th., 1852.

Can any of your readers tell me the origin of the word "Wort," so frequently used in Botany, as Woundwort, Lousewort, Spearwort, Spiderwort, Etc.—S. HANNAFORD, JUN., Totnes, April 7th., 1852.

' *Nuphar lutea* is plentiful in the River Frome, Stapleton, near Bristol.—HENRY WATTS, 2, Lower Arcade, Bristol, April 26th., 1852.

THE COLLARED TURTLE-DOVE, (*TURTUR RISORIUS*.)

BY MISS CATLOW.

OBSERVING in your journal an article on the materials used by Pigeons in constructing their nests, I beg to offer you the following curious particulars relative to two Ring-doves I had in a state of captivity for more than eight years; they were hatched in a cage, and brought to me from Sussex, when quite young. I had a large roomy cage for them, and being at the time a great invalid, and confined to the house, I petted my pretty birds till they became so tame as to leave their cage and fly about my room with the greatest familiarity, even though a favourite dog was constantly by my side, and attentively watching them. They would sit on my finger, eat out of my hand and mouth, and perch on my shoulder and head; indeed they generally chose the latter situation as soon as they left their cage.

In the spring of the second year, they built their nest in a compartment of their cage provided for the purpose, with twigs, which I cut from a birch broom, for I was then residing in London, and could not conveniently procure fresh twigs for them. After the nest was made I found four eggs laid, and then first knew that the birds were both females; but as I was much attached to my pets, I did not part them. They sat very assiduously on these eggs, taking the duty alternately, and both roosting together at night, though the strongest generally contrived to cover all the eggs. At the end of three weeks they abandoned them, and in the course of another re-constructed their nest, and again deposited their eggs.

This they continued seven or eight times every year; but what I wished particularly to communicate to you is an account of the materials these birds preferred for their house-building. Being so tame they were constantly on my table, and on one occasion attempted to carry away a quantity of rather coarse string which happened to lie there. It was a very droll sight to see these pretty creatures carrying a long piece of string, each holding an end in its beak; the struggles they made to take it from each other and fly away, lasted some time, and their manœuvres were very curious; but as they could not manage it, I at last cut the string, and gave to each a piece, which they eagerly took from my hand, deposited them in their box, and then instantly returned for more, walking round my workbox and books, and close to my hands, as if looking for a fresh supply. I gave them many short bits, which they laid in due order on the twigs already in their nest. Every day when the cage door was opened, they came to procure more, and in short, it seemed to become a mania with them, for if there was any string lying within sight of their cage, they were never easy till it was given to them. After this they entirely refused twigs, even when placed in the cage for them. I should not omit to state that they invariably shook the string violently for several minutes, before placing it in the cage, just as they had

been accustomed to shake the twigs: this action was I imagine to shake off insects.

After some time one of the Doves happening to meet with a narrow strip of paper, and this seeming to suit its purpose equally well with twigs or string, it was carried to the nest, and from that time the same eagerness was shown for strips of paper as for string; but if it were not stiff they would have nothing to do with it. These birds would carry up these curious materials as fast almost as I could cut them up, and at times, as they sat in the nest, they were almost buried in string and paper—a curious sight—their pretty heads and bright eyes peeping out of these odd materials.

They were both perhaps more tame than such birds had ever been made before, for besides the particulars I have mentioned, they would wash in a large bowl, whilst I held it in my hand, splashing the water about with their wings, and then preening their feathers as familiarly as if I were not close to them. One of them, which I called “Lovey,” was more particularly so, for she allowed me to stroke her wings and back and kiss her all over, as she sat on my finger; but “Dovey” would not be kissed, though in other respects equally at ease. They were greatly attached to each other, for if one was carried out of the room, the other fluttered about, and was greatly distressed till the return of its companion. They were a constant source of interest and amusement to me during many years of ill health, and I was never tired of watching their graceful actions. At last one having been for some time in a suffering state, and unable to get on the perch, I thought it more merciful to have them both killed, as I was going from home for some time, and thus these interesting birds lived, died, and were buried together.

Beaconsfield, Buckinghamshire, March 9th., 1852.

LOCAL JOTTINGS.—No. 4. DORCHESTER—DORSETSHIRE.

BY JOHN GARLAND, ESQ.

“Our River, and its finny inhabitants.”

I OMITTED in my last several of the “Finny” tribe inhabiting the pleasant River Froome, and which, though of trifling consideration, and seldom observed, are, I humbly think, well worthy of mention.

The Loach, (*Cobitis barbatula*.)—This little fish is found lying under stones, but seldom or never attains a larger size than four or five inches, and is not very abundant in this stream. It is of a dullish brown colour, with a light-coloured belly, and has several projections or barbules issuing from the mouth, which are very peculiar. It feeds on insects, worms, &c.

The Miller's thumb, or Bull-head, (*Cottus gobio*.) is a well-known little fish, and very numerous in “our stream.” It is seldom more than three or four inches in length, and has a very singular-looking head—large, round, and rather flat. The body dark, with belly whitish. It is a very stupid fish,

and unlike the Loach easily becomes the prey of the school-boy. I have never known it or the Loach eaten. Mr. Yarrell, in one of his works, of which I unfortunately forget the title, gives an entertaining explanation of the origin of the names by which this curious fish is commonly known. It lurks also under stones, and feeds on aquatic insects, etc.

The Stickleback, or Thornback, (Gasterosteus aculeatus.)—This curious little fish abounds here, but is of very small size—not more than an inch and a half in length. It is of a green colour, with belly white, but sometimes streaked with crimson. There are three sharp spines on the back, which it can raise at will. It is very voracious.

I am not aware if either the Roach, Perch, or Gudgeon be found in this river, but I have never seen any of them within the distance I have mentioned, and taken as the field of my observation.

There are a few other little residents in and near our stream, a notice of which should be appended as a finale to my observations on this river. These are

The Leech, (Hirudo.)—This well-known creature is found rather abundantly in and near the main river, and is of a darker colour than many I have seen in rivers in Hampshire and elsewhere. They do not, however, attain to a large size.

The Frog, (Rana temporaria.)—Immense numbers of these little reptiles are seen in early summer in the river and water meadows near this town of all sizes, and generally very bright in colour. Toads are comparatively very scarce in this neighbourhood. I have often been puzzled to find out how these little gentry, the Frogs, could get into a wine-cellar of mine. I used frequently to have them taken out and every nook and cranny cleaned and scraped most thoroughly, and yet to my surprise and annoyance more constantly appeared. I have never been able to account satisfactorily for this to myself, especially as the temperature is always about equal, and the cellar not very damp.

The Water-Newt, (Triton cristatus.)—This beautiful little reptile is seen here occasionally, and I have already mentioned the subject at page 142 of the first volume of "The Naturalist," and ought therein to have alluded to this species of reptile. It is found in stagnant waters, and feeds on insects.

The Water-Rat, (Arvicola amphibia.)—The banks in many parts of the stream are, much to the annoyance of the agriculturists, undermined with the burrows of these industrious little animals. It is perfectly harmless, and feeds entirely on roots and vegetables; although from its being so much like the Common Rat, it is looked upon as a carnivorous animal, and much persecuted. It swims and dives remarkably well, and is very timid, seldom being seen, unless carefully watched for. It is difficult to discover the entrance to their burrows, as it is generally close to the water's edge.

There are some pretty species of Fresh-water Shell-fish found here, of which I propose speaking in a future article.

April 2nd., 1852.

A TRIP TO WICKEN-FEN, CAMBRIDGESHIRE.—No. 2.

BY R. A. JULIAN, ESQ., JUN.

STARTED from Cambridge at seven o'clock, a.m., and proceeded down the river in a four-oar, accompanied by Mr. Green, of King's College, Messrs. Creed and Stuart, of Christ's, and Mr. Outram, of Emmanuel.

The morning was misty, and many anxious inquiries were made as to the probability of the weather clearing, however just as we reached the Bait-Bite Lock, five miles on our journey, we were cheered with a gleam of sunshine, which dispelled our fears and the mist together. Here some singular-looking goshawks attracted our attention, which we found to be hybrids, a cross between the Chinese and the common tame species; they were about a fortnight old. As we proceeded the Larks were singing merrily, (one was perched on the top of a willow-bush,) and the pleasing, though rather harsh ditty of the Reed Bunting enhanced our enjoyment of the morning. The sharp chirp of the Tree Sparrow seeking a mate among some old willow-pollards was not unnoticed; and the watchfulness of a few straggling Hooded Crows, the bulk having migrated, showed them to be as well supplied with cunning as other species of that family.

The second Locks were now reached, and we were here joined by another friend, Mr. Wayte, Jun., of King's College, who had overtaken us by taking the train from Cambridge to Waterbeach. Here we got heartily tired of rowing, and drew up our boat high and dry on the banks, and proceeded on foot. The scene which now presented itself was a vast extent of flat country, all reclaimed fen, a windmill or two in the distance, and here and there lay a farm-house, usually surrounded by a few apologies for trees, and one or two corn and bean stacks. It was at one of these farms that we discovered a great quantity of Mountain Linnets, (*Linota montium*;) and the eagerness with which they were pursued and persecuted for some half-hour, proved them to be desiderata in all our collections. They were feeding on some seed, principally charlock, that had been cast out from among corn, were very tame, and occasionally a few would sit warbling away on a tree in the sunshine. The length of their tails, when accompanied by the Common Linnet, was a good mark of distinction between the two species, and one easily discernible at a distance. Their frequent note, resembling the word 'twete,' or 'twite,' also at once distinguished them.

After having procured a goodly number of these birds, we proceeded to Upware, where there stands close to the banks of the Cam, *The Five Miles from Anywhere*; certainly a very unusual sign for a public-house. Here we refreshed, and then started to explore Wicken-fen. It consists of a large level plain, much intersected with dykes, and thickly covered with sedge and reed, and an occasional willow-bush just budding. On the bank of the first dyke the Colt's-foot, (*Tussilago farfara*,) was in full bloom. At this jump to get into the fen none of the party succeeded, and one of them seeing it was beyond

what he could hope to get over dry, walked through, the depth of water and mud being about five feet. We had scarcely got into the sedge, and were going on in line, when up flew a Short-eared Owl, (*Strix brachyotos*;) and at the report of the gun another appeared from the same spot. They both fell; and such eyes—superbly magnificent. Having put some cotton-wadding in their throats, and re-loaded our guns, we again advanced, and presently one of our party flushed another, and as soon as that fell, a fourth arose to share the fate of its predecessors.

In both instances the male was the first to fly; and of the second pair, he was of a much more mealy appearance than these birds usually are. They annually breed in the fen, laying four or five pure white eggs, and from their forward state on dissecting them, I should say they are very early breeders.

Finding nothing more, with the exception of a Water-Rail, we returned to dine quite elated with our day's sport.

"Oh! who would cast, and balance at a desk,
Perch'd like a Crow upon a three-legg'd stool,
Till all his juice is dried, and all his joints
Are full of chalk? But let me live my life."

TENNYSON.

Emmanuel College, Cambridge, March 8th., 1852.

THE LEPIDOPTEROUS INSECTS OF MIDLOTHIAN.

BY DR. W. H. LOWE, F. R. S., ED., ETC.,

AND R. F. LOGAN, ESQ., M. R. P. S., ED.

(Continued from page 128.)

GEOMETRÆ.

Geometra, *Linn*.....—*papilionaria*: Roslyn, Mr. Duncan; rare.

Metrocampa, *Lat*.....—*margaritaria*: common in woods.

Ellopiæ, *Steph*.....—*fasciaria*: Kirknewton, Mr. Logan; Corstorphine Hill,
Dr. Lowe.

Ourapteryx, *Leach*.....—*Sambucaria*: Mr. Duncan; rare.

Rumia, *Dup*.....—*Cratægaria*: everywhere.

Ennomos, *Dup*.....—*lunaria*: Dr. Greville.

" " —*illunaria*: Duddingston, Mr. Logan; Balgreen, Dr. Lowe.

Odontopera, *Steph*.....—*bidentaria*: Duddingston, Mr. Logan; Balgreen, Dr. Lowe.

Crocallis, *Tr*.....—*clinguaria*: Duddingston, Mr. Logan; Musselburgh, Mr.
J. Howden; Balgreen, Dr. Lowe.

Himera, *Dup*.....—*pennaria*: Duddingston, Mr. Logan; Balgreen, Dr. Lowe;
rare.

Macaria, *Curt*.....—*litraria*: Corstorphine Hill, Dr. Lowe; scarce.

Halia, *Dup*.....—*Vauaria*: common.

Fidonia, *Steph*.....—*piniaria*: common in fir woods.

- Eupisteria, *Boisd.*...—carbonaria: Pentland Hills, Dr. Lowe.
- Hibernia, *Lat.*.....—leucophaearia: Duddingston, Mr. J. C. Howden, 1848; rare.
- “ “ —rupicaprararia: Duddingston, Musselburgh; scarce.
- “ “ —progemmaaria: Duddingston, February; not unfrequent.
- “ “ —aurantiaria: Duddingston, Mr. Logan; scarce.
- “ “ —defoliaria: Duddingston, Mr. Logan; more common.
- Phigalia, *Dup.*.....—pilosaria: Duddingston, Mr. Logan; Corstorphine Hill, Dr. Lowe.
- Biston, *Leach.*.....—Betularia: in Mr. Stuart's list.
- Boarmia, *Tr.*.....—repandaria: common in woods.
- Gnophos, *Boisd.*.....—obscuraria: Arthur's Seat, Dr. Lowe.
- Phasiane, *Dup.*.....—palumbaria: common.
- Anaitis, *Dup.*.....—plagiaria: Duddingston, Mr. Logan; Corstorphine Hill, Dr. Lowe.
- Eubolia, *Boisd.*.....—cervinaria: Duddingston, Mr. Logan.
- “ “ —mensuraria: common.
- “ “ —multistrigaria: Arthur's Seat, Mr. Logan.
- Coremia, *Guen.*.....—didymaria: very common among nettles.
- “ “ —olivaria: Newbattle, Mr. Logan; rare.
- “ “ —pectinitaria: common in fir woods.
- “ “ —montanaria: very common among nettles.
- “ “ —fluctuaria: very common on cabbages.
- “ “ —munitaria: Borthwick Castle, 1848, Mr. Logan; rare.
- Thera *Steph.*.....—firmaria: Duddingston, Mr. Logan; Corstorphine Hill; Dr. Lowe.
- “ “ —simularia: Belstane, near Kirknewton, Mr. Logan.
- Anticlea, *Steph.*.....—badiaria: Musselburgh, Mr. J. Howden.
- “ “ —derivaria.
- Steganolophia, *Steph.*—ribesaria: common in gardens.
- Harpalyce, *Steph.*...—silacearia: Queensferry, Dr. Greville; rare.
- “ “ —suffumaria: Duddingston, Mr. Logan; Pentland Hills, Balgreen, Dr. Lowe.
- “ “ —ruptaria, Cramond, Mr. Logan; Corstorphine Hill, Dr. Lowe.
- “ “ —ocellaria: Duddingston, Mr. Logan; Corstorphine Hill, Dr. Lowe.
- “ “ —Galiaria: Arthur's Seat; not unfrequent.
- “ “ —fulvaria: common: feeds on roses.
- “ “ —Chenopodiaria: not unfrequent.
- “ “ —pyraliaria: Craig Millar Castle, Mr. Logan; Corstorphine Hill, Dr. Lowe.
- “ “ —Popularia: Pentland Hills, Mr. Logan; Corstorphine Hill, Dr. Lowe; scarce.
- “ “ —achatinaria: Pentland Hills; abundant in September.

- Harpalyce, Steph...*—*Russaria*: Duddingston, Musselburgh, Balgreen.
 “ “ —*immanaria*: common.
Ypsipetes, Steph...—*impluviaria*: Balgreen, Dr. Lowe; scarce.
 “ “ —*elutaria*: common.
Phæsyle, Dup.....—*cæsiaria*: Pentland Hills, Balgreen, Dr. Lowe.
 “ “ —*niaria*: Duddingston, Mr. Logan; Balgreen, Dr. Lowe.
Cheimatobia, Steph...—*dilutaria*: Duddingston, Corstorphine Hill.
 “ “ —*fligrammaria*: Pentland Hills, Mr. Logan.
 “ “ —*brumaria*: very common.
Triphosa, Steph.....—*dubitaria*: Duddingston, Mr. Logan.
Phibalapteryx, Steph—*lignaria*: Duddingston, Mr. Logan.
Melanippe, Dup.....—*tristaria*: Pentland Hills, Cramond, Mr. Logan; rare.
 “ “ —*Alchemillaria*: common.
Emmelesia, Steph...—*hydraria*: Duddingston, Mr. Logan; Corstorphine Hill,
 Dr. Lowe.
 “ “ —*decoloraria*: Cramond, Mr. Alexander Logan; a single
 specimen.
 “ “ —*albularia*: Duddingston, Mr. Logan; Pentland Hills,
 Dr. Lowe.
 “ “ —*Ericetaria*: Pentland Hills.
Zerene, Steph.....—*rubiginaria*: Balgreen, Dr. Lowe; rare.
Abraxas, Leach.....—*Grossulariata*: common.
Cabera, Dup.....—*pusaria*: Banks of the Esk, Mr. J. C Howden; Corstorphine Hill, Dr. Lowe; Queensferry, Dr. Greville.
Eupithecia, Curt....—*Linaria*: Corstorphine Hill, one specimen, Dr. Lowe; very
 rare.
 “ “ —*pulchellaria*: Corstorphine Hill, Dr. Lowe; rare.
 “ “ —*rectangularia*: not unfrequent.
 “ “ —*indigaria*: Corstorphine Hill, Dr. Lowe.
 “ “ —*exiguaria*: common.
 “ “ —*minutaria*: common.
 “ “ —*nanaria*: Pentland Hills, Corstorphine Hill.
 “ “ —*abbreviaria*: Corstorphine Hill; Dr. Lowe.
 “ “ —*castigaria*: common.
 “ “ —*austeraria*: common.
 “ “ —*Callunaria*: Pentland Hills.
 “ “ —*Centaurearia*: near Leith, Mr. Logan; near the coast.
 “ “ —*subfulvaria*: Duddingston, Mr. Logan; rare.
 “ “ —*sobrinaria*: Pentland Hills, Mr. Logan.
 “ “ —*elongaria*: near Musselburgh and Portobello, Mr. Logan.
 “ “ —*cognaria*: Curtis.
Dosithea, Dup.....—*virgularia*: common.
 “ “ —*scutularia*: Balgreen, Dr. Lowe; not unfrequent.
 “ “ —*bisetaria*: Dr. Greville.

- Acidalia*, *Tr.*.....—*aversaria*: common.
Pæcilophasia, *Steph.*—*marginaria*: Dr. Greville, Dr. Lowe; rare.
Odezia, *Boisd.*.....—*Cherophyllaria*: Corstorphine Hill, Dr. Lowe.

TORTRICES.

- Tortrix*, *Lin.*, *Guen.*—*Xylosteana*: common.
 “ “ “ —*Rosana*: common.
 “ “ “ —*heparana*: common.
 “ “ “ —*Ribeana*: common.
 “ “ “ —*spectrana*: Duddingston, Mr. Logan.
 “ “ “ —*Icterana*: Duddingston, Cramond.
 “ “ “ —*Viburnana*: near Kirknewton; common.
 “ “ “ —*viridana*: common.
Amphisa, *Curt.*.....—*Gerningiana*: Kirknewton, Mr. Logan.
 “ “ —*prodromana*: Pentland Hills, Dr. Lowe; rare: Mr. Logan.
Leptogramma, *Curt.*—*littorana*: Duddingston, Mr. Logan.
Peronea, *Curt.*.....—*favillaceana*: common.
 “ “ —*mixtana*: Pentland Hills.
 “ “ —*Schalleriana*: common.
 “ “ —*comparana*: common.
 “ “ —*Caledoniana*: Pentland Hills; Mr. Logan, Dr. Lowe.
 “ “ —*Abildgaardana*: common.
 “ “ —*ferrugana*: Duddingston, Mr. Logan.
 “ “ —*asperana*: Pentland Hills.
Teras, *Tr.*.....—*caudana*: (*Effractana*, *Hub.*) not unfrequent; Duddingston, Mr. Logan.
Dictyopteryx, *Steph.*—*contaminana*: common.
 “ “ —*Holmiana*: on Blackford Hill upon the rose in 1844, Mr. Logan.
 “ “ —*Bergmanniana*: common.
Argyrotoza, *Steph.*—*Conwayana*: not unfrequent.
Ptycholoma, *Steph.*—*Lecheana*: Duddingston, Mr. Logan; Dalkeith, Mr. A. Murray.
Penthina, *Tr.*.....—*Pruniana*: Craig-Millar Castle, Mr. Logan; Slateford, Dr. Lowe.
 “ “ —*Cynosbana*: common.
Spilionota, *Steph.*—*comitana*: Duddingston, Mr. Logan; rare.
 “ “ —*neglectana*: in willow trees, Duddingston, Mr. Logan.
 “ “ —*suffusana*: near Kirknewton, Mr. Logan.
Pardia, *Guen.*.....—*tripunctana*: common.
Sericoris, *Tr.*.....—*cespitana*: Arthur's Seat.
 “ “ —*lacunana*: common.
 “ “ —*micana*: Borthwick Castle, Mr. Logan.
Mixodia, *Guen.*.....—*Schulziana*: Pentland Hills, Dr. Lowe.

- Orthotaenia*, *Steph.*—*antiquana*: Balgreen, Dr. Lowe.
Cnephasia, *Curt.*....—*musculana*: Mr. Logan.
Sciaphila, *Tr.*.....—*subjectana*: common.
 “ “ —*Virgaureana*: not unfrequent.
 “ “ —*octomaculana*: not unfrequent.
 “ “ —*bellana*: Edinburgh, Mr. Curtis.
Clepsia, *Guen.*.....—*rusticana*: Belstane, near Kirknewton, Mr. Logan; rare.
Bactra, *Steph.*.....—*lanceolana*: common.
 “ “ —*furfurana*: Duddingston, Mr. Logan, Dr. Greville.
Phoxopteryx, *Tr.*...—*unguicana*: Pentland Hills; abundant: Mr. Logan, Dr. Lowe.
 “ “ —*Lundana*: not unfrequent.
Grapholita, *Tr.*.....—*Paykulliana*: Mr. Logan; scarce.
 “ “ —*nigromaculana*: Borthwick Castle, Mr. J. Howden; Balgreen, Dr. Lowe.
 “ “ —*campoliliana*: Pentland Hills, Mr. Logan.
 “ “ —*trimaculana*: common.
 “ “ —*noevana*: on holly; common.
Batodes, *Guen.*.....—*angustiorana*: common.
Pœdisca, *Tr.*.....—*corticana*: common.
 “ “ —*occultana*: Corstorphine Hill, Braid Hill, Duddingston, on the silver fir.
 “ “ —*Solandriana*: Pentland Hills, Mr. Logan; Duddingston.
 “ “ —*sordidana*: Alder trees near Musselburgh, Mr. Logan; Balgreen, Dr. Lowe.
Ephippiphora, *Dup.*—*dissimilana*: Balgreen, a single specimen, Dr. Lowe.
 “ “ —*scutulana*: Pentland Hills, Mr. Logan, Duddingston.
 “ “ —*Brunnichiana*: common on *Tussilago farfara*.
 “ “ —*turbidana*: a single specimen taken at Duddingston, by Mr. Logan; several taken by Dr. Lowe at Balgreen. *Tussilago farfara* and *Petasites vulgaris* were so intermingled, that the insect might belong to either.
 “ “ —*trigeminana*: Borthwick Castle, Mr. Logan; Balgreen, Dr. Lowe.
 “ “ —*tetragonana*: Borthwick Castle, Mr. Logan.
Olindia, *Guen.*.....—*Ulmana*: Borthwick Castle, Mr. Logan; Corstorphine Hill, Dr. Lowe.
Semasia, *Guen.*.....—*Wœberana*: not unfrequent on plum trees.
Coceyx, *Tr.*.....—*argyrana*: common on oak trees.
 “ “ —*splendidulana*: Duddingston, Mr. Logan; scarce.
 “ “ —*Hercyniana*: common on fir trees.
Heusimene, *Steph.*—*fimbriana*: on oak trees, Duddingston; not common: Mr. Logan.
Pamplusia, *Guen.*...—*subsequana*: Pentland Hills, Mr. Logan; Corstorphine Hill, Dr. Lowe.

- Stigmonota, *Guen*...—perlepidana: Duddingston, Mr. Logan; Pentland Hills, Dr. Lowe.
- Dierorampha, *Guen*—Petiverana: including var. *Stelliferana*; Arthur's Seat, rare; Mr. Logan: abundant at Balgreen, Dr. Lowe.
- “ “ —saturnana: occasionally met with.
- Pyrodes, *Guen*.....—Rheediana: Duddingston, Balgreen.
- Catoptria, *Guen*.....—Ulicetana: very common on whin.
- “ “ —Carduana: Arthur's Seat, Balgreen.
- Trycheris, *Guen*.....—mediana: Cramond, Dr. Greville; Duddingston, Mr. Logan; Balgreen, Dr. Lowe.
- Simaëthis, *Leach*...—Fabriciana: always to be met with on nettles.
- Eupœcilia, *Steph*.....—ambigua: (?) Duddingston, a single specimen, Mr. Logan.
- “ “ —angustana: Duddingston.
- “ “ —ruficiliana: abundant on Leyden moor, near Kirknewton, Mr. Logan.
- Xanthosethia, *Steph*—hamana: Corstorphine Hill, a single specimen, Dr. Lowe.
- Argyrolepis, *Steph*—Baumanniana: Leyden moor, near Kirknewton, Mr. Logan; rare.
- Cochylis, *Tr*.....—stramineana: Duddingston, Balgreen.
- Tortricodes, *Guen*...—hyemana: common in March and April.
- Aphelia, *Curt*.....—pratana: Arthur's Seat.

TINEÆ, (*Stainton's Nomenclature.*)

- Crambus,.....—pratellus: common.
- “ —hortuellus: common.
- “ —pascuellus: a single specimen taken at Leith, Mr. Logan.
- “ —falsellus: Arthur's Seat in August, Mr. Logan.
- “ —Pinetellus: Dr. Greville.
- “ —margaritellus: Dr. Greville.
- “ —culmellus: everywhere.
- “ —tristellus: abundant.
- Eudorea,.....—Grœcella: common.
- “ —ambigualis: common.
- “ —Pyralella: Cramond, Musselburgh, Arthur's Seat, &c.
- “ —Cratœgella: Duddingston, Mr. Logan; Corstorphine Hill, Dr. Lowe.
- “ —lineola: Duddingston, Mr. Logan; Corstorphine Hill, Dr. Lowe.
- “ —coarctata: Arthur's Seat, Mr. Logan; Balgreen, Dr. Lowe.
- Aphomia,.....—colonella: common.
- Pempelia,.....—dilutella: Arthur's Seat, Mr. Logan.
- “ —carbonariella: a single specimen at Duddingston, Mr. Logan.
- Chimabacche,.....—Fagella: abundant in spring.

- Exapate*,.....—*gelatella*: abundant on the Pentland Hills.
Talœporia,.....—Species undetermined: on rocks on Arthur's Seat.
Tinea,.....—*maseulella*: Duddingston, Slateford, &c: abundant.
 ".....—*rusticella*: Duddingston, Mr. Logan; Balgreen, Dr. Lowe.
 ".....—*tapetiella*: Portobello, Mr. Logan, Dr. Greville.
 ".....—*granella*: common near granaries.
 ".....—*Cloacella*: common on decaying wood.
 ".....—*pellionella*: not unfrequent; destructive to furs and skins.
 ".....—*ganomella*: Duddingston; abundant.
 ".....—*compstella*: Corstorphine Hill, Duddingston, Newington.
 ".....—*cæsiella*: abundant on whitethorn.
 ".....—*semifulvella*: Dr. Greville.
Ochsenheimeria.....—*vacculella*: Arthur's Seat.
Micropteryx.....—*seppella*: abundant everywhere.
 ".....—*semipurpurella*: Inveresk, Mr. Logan, a single specimen.
 ".....—*subpurpurella*: abundant in May.
Nematopogon.....—*Schwarziellus*: Musselburgh, Mr. Logan.
Adela.....—*fibulella*: Duddingston, Mr. Logan; Cramond, Dr. Lowe.
Nemotois.....—*Minimellus*: (?) near Kirknewton, Mr. Logan.
Plutella.....—*Cruciferarum*: injurious to turnips and *Cruciferae* generally.
 ".....—*maculipennis*: Dr. Greville.
 ".....—*porrectella*: Duddingston, Balgreen, on white rocket.
 ".....—*Dalella*: Pentland Hills, Corstorphine Hill.
 ".....—*vitella*: abundant on the bark of beech trees.
 ".....—*fissella*: common.
 ".....—*harpella*: common.
Anchinia.....—*bicostella*: near Kirknewton.
Cœophora.....—*sulphurella*: in decaying wood.
 ".....—*quadripunctella*: Arthur's Seat on the wild rose, Mr. Logan.
 ".....—*Lewenhoekella*: Pentland Hills in May.
 ".....—*lacteella*: extremely common.
 ".....—*fuscocuprea*: Pentland Hills.
 ".....—*fuscescens*: Corstorphine Hill, Dr. Lowe.
 ".....—*Curtisella*: abundant on ash trees; local.
Yponomeuta.....—*Malivorella*: occasionally very injurious to apple trees.
 ".....—*Evonymella*: on *Prunus padus*, experimental gardens, Mr. Evans.
Orthotælia.....—*Sparganiella*: Duddingston Loch, Mr. Logan.
Depressaria.....—*costosa*: common on whin.
 ".....—*liturella*: Duddingston, Mr. Logan; Water of Leith, Dr. Lowe.
 ".....—*Ulicetella*: Corstorphine Hill, Dr. Lowe; Arthur's Seat, Mr. Logan.
 ".....—*arenella*: frequent.

- Depressaria.....—*applanata*: common throughout the year.
 “ —*Heracleana*: common on the Cow Parsnip.
 “ —*atomella*: Pentland Hills, Mr. Logan.
 “ —*conterminella*: Balgreen, Mr. Logan, on osier twigs.
 Gelechia.....—*cinerella*: Arthur's Seat, Borthwick Castle, Mr. Logan.
 “ —*gallinella*: Pentland Hills; abundant.
 “ —*terrella*: common.
 “ —*Cirsiella*: Pentland Hills.
 “ —*longicornis*: Pentland Hills.
 “ —*obsoletella*: near Musselburgh, Mr. Logan.
 “ —*mulinella*: Arthur's Seat on the whin.
 “ —*diffinis*: Musselburgh Links, September, 1849, Mr. Logan.
 “ —*sequax*: Arthur's Seat, on *Helianthemum*.
 “ —*Artemesiella*: Arthur's Seat.
 “ —*dodecella*: Braid Wood, Mr. Logan; Corstorphine Hill,
 Dr. Lowe.
 “ —*Knockella*: Duddingston, Mr. Logan.
 “ —*tæniolella*: Dr. Greville.
 Roeslerstammia.....—*pygmœana*: Roslin, Mr. Logan.
 Glyphipteryx.....—*variella*: Duddingston.
 Oechmia.....—*Thrasionella*: in marshy places.
 “ —*Fischeriella*: common, especially in woods.
 Argyrorethia.....—*nitidella*: very common.
 “ —*albistria*: Arthur's Seat, Pentland Hills, Mr. Logan;
 Corstorphine Hill, Dr. Lowe.
 “ —*semitestacella*: common on beech trees.
 “ —*conjugella*: Dr. Greville.
 “ —*curvella*: not unfrequent on apple.
 “ —*ephippella*: common on cherry and plum trees.
 “ —*arceuthina*: Pentland Hills on juniper.
 “ —*dilectella*: Duddingston, on *arborvitæ*.
 “ —*farinatella*: near Kirknewton, Mr. Logan, in July, and
 Corstorphine Hill.
 “ —*Gœdartaella*: abundant on birch and alder trees.
 “ —*Brockella*: Dalmahoy, in birch woods.
 Coleophora.....—*albicosta*: Corstorphine Hill, Dr. Lowe; Arthur's Seat,
 Mr. Logan.
 “ —*cœspitiella*: Pentland Hills, Duddingston, Mr. Logan.
 “ —*coraciopennella*: Borthwick Castle, Mr. Logan.
 Zelleria.....—*fasciapennella*: first seen by Mr. Logan on the Pentland
 Hills, 1847; and again taken in 1851 in the same
 spot.
 Gracillaria.....—*Frankella*: not unfrequent on oak trees.
 “ —*syringella*: common.

- Gracillaria.....—auroguttella: Musselburgh, Mr. Logan.
 Ornix.....—Anglicella: not unfrequent in whitethorn.
 “.....—torquilella: Arthur's Seat, on sloe trees.
 Cosmopteryx.....—proeangusta: Musselburgh, Mr. J. C. Howden.
 Elachista.....—Staintoni: Arthur's Seat a single specimen, Mr. Logan.
 “.....—atra: on whitethorn (?) and apple trees.
 “.....—albifrontella: Duddingston.
 “.....—luticomella: Duddingston.
 “.....—atricomella: Duddingston.
 “.....—Kilmunella: (?) Arthur's Seat, Mr. Logan.
 “.....—nigrella: Craig-Millar Castle; Duddingston.
 “.....—pulchella: Duddingston; scarce.
 “.....—obscurella: Pentland Hills in May.
 “.....—apicipunctella: Cramond, Duddingston.
 “.....—Rhynchosporella: Kirknewton, Mr. Logan.
 “.....—cygnipennella: abundant.
 “.....—testaceella: Duddingston.
 “.....—consortella: Arthur's Seat; abundant in March and April.
 Lyonetia.....—Clerkella: Duddingston, Mr. Logan; Balgreen, Dr. Lowe; scarce.
 Cemiostoma.....—Spartifoliella: on Broom, near Borthwick Castle.
 “.....—scitella: common on apple trees.
 Nepticula.....—ruficapitella: Duddingston in May.
 “.....—gratosella: Duddingston in May.
 Lithocolletis.....—Pomifoliella: abundant in whitethorn.
 “.....—Ulmifoliella: Borthwick Castle, a single specimen, Mr. Logan.
 “.....—Pomonella: Duddingston, Mr. Logan.
 “.....—Faginella: abundant on beech trees.
 “.....—Quercifoliella: common on oak trees.
 “.....—Alnifoliella: Newbattle and Duddingston, Mr. Logan; scarce.
 Pterophorus.....—ochrodactylus: Duddingston, Balgreen; scarce.
 “.....—fuscus: more common.
 “.....—trigonodactylus: in a quarry at Musselburgh, Mr. Howden.
 “.....—pterododactylus: Duddingston, Mr. Logan, in October rare.
 “.....—tetradaactylus: near Torsonce, Mr. Logan.
 “.....—bipunctidaactylus: Arthur's Seat and Corstorphine Hill.
 Alucita.....—polydactyla: Duddingston, Mr. Logan; Balgreen, Dr. Lowe.
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ANATOMY OF THE PORBEAGLE SHARK, (*SQUALUS CORNUBICUS*.)

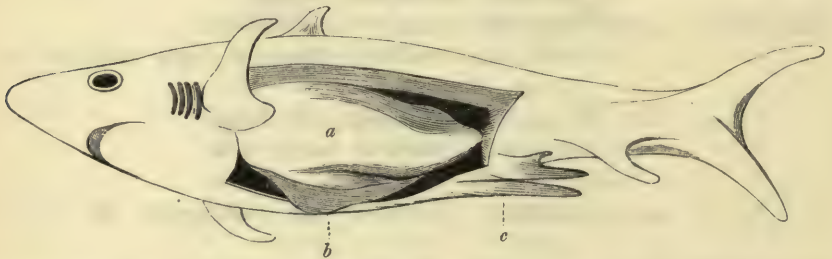
BY T. SPENCER COBBOLD, ESQ., M. D., EDINBURGH;

Senior President of the Royal Medical Society.

THE dissection of any of the larger species of the Shark tribe, (*Plagiostomes*), cannot fail to be interesting in a teleological point of view, whether we confine our attention to particular *systems* only, such as the nervous, vascular, digestive, and reproductive, or, when taking a more extended view of the subject, we trace out in full detail the relations of structure and function of the entire fabric, as compared with that of other animals.

In the present paper I propose to record *very briefly* a few of the more prominent anatomical peculiarities, as indicated by a careful dissection of one of the above-named species, a large number of which were captured last winter by the fishermen of the Firth of Forth, during the Herring season.*

Commencing our manipulation by removing almost the whole of the left wall of the abdominal cavity, we at once bring into view the *liver*, which in the present species is divided into two nearly equal halves or *lobes*, enclosing between them all the remaining abdominal viscera, strictly so called. Fig. 1. gives us a faithful notion of the position of this viscus; while its obvious size indicates in no small degree its relative importance in the economy of digestion



and assimilation.†

Our next step was to remove *en masse* the entire abdominal contents, so that, as represented in Fig. 2, we have still retained all the parts *in situ*; the left lobe of the liver has been turned on one side, and we have now exposed more fully those organs, the manifestations of whose functions illustrate very

* An extended verbal account of this dissection was made to the Physiological Society of Edinburgh, December 20th., 1851.

† These illustrations are copies of drawings made by the author from the dissections.

Explanation of Fig. 1.—(a,) right lobe of liver; (b,) portion of left lobe drawn out from under the other viscera; (c,) the claspers.

forcibly that unerring skill by which the Divine artificer adapts everything in such a manner only as shall be most conducive to the wants and preservation of the individual.



Directing our attention then to the second figure, we observe the gall bladder, (d,) situated, as we should anticipate, immediately at the place where the two lobes of the liver are united; at this spot also the gall duct and the duct from the liver, (*hepatic*,) coalesce, and the *common* duct thus formed descends alongside the stomach, as indicated by the letter (e,) emptying its contents, the bile, into the small intestine, to be more fully noticed presently. We have not space sufficient to point out the vascular arrangement of these organs, but it may be observed that a group of vessels, marked (f) in the engraving, constitute a remarkable anastomosis '*plexus mirabilis*' between the hepatic veins and certain arterial branches, (*cæliac*,) the blood of which being

thus of a mixed character is distributed to the stomach and intestines in the usual manner.

But we pass on now to the consideration of that all-important viscus, the stomach, (st,) and looking first to that end of the organ directed towards the oral aperture, we fail to recognise any line of demarcation, so generally found in animals, at the point where the gullet (g,) terminates in the stomach, constituting the cardiac orifice; in short we cannot define where the stomach begins; the utility of such a patent condition of the œsophagus being evident, inasmuch as the existence of a contracted aperture would not only prevent the ready passage of large masses of food, but would also prevent the animal from freeing itself of those indigestible portions of it which it is from time to time necessitated to eject.

If we next examine the opening, or pyloric orifice, (h,) by which the digestible part of the food makes its escape into the intestines, we find here, on the contrary, that the organ has suddenly contracted into a very narrow tube, which is at once recognised as the duodenum, (i,) or small intestine. Large masses of indigestible material are thus very effectually prevented passing in this latter direction, for if allowed to get into this part of the alimentary canal, the great function of nutrition would be interfered with, moreover it is probable that the existence of a peculiar valvular arrangement in the large intestine would present an insuperable obstacle to its free exit.

A most interesting structure, and one which presents a great diversity of external configuration, is the spleen, (k, k, k.) In the present dissection we find it divided into a multitude of unequal lobes, adhering together by folds of the peritoneum with which it is invested, together forming an uninterrupted chain of glands, and embracing lengthwise two-thirds of the circumference of the stomach. The office this structure is destined to fulfil is not yet satisfactorily ascertained, but numerous observations and experiments seem to prove that its function is that of a blood-preparing organ. We next come to a gland whose form is much more simple, and whose function is intimately connected with assimilation; this is the pancreas, (l;) and here, like the spleen in man, it exists simply as an elongated body slightly curved upon itself, but, unlike the spleen, indicates a tendency to subdivision in the mesial line. The situation of this organ might at first sight cause a doubt in the mind of the anthropotomist as to its identity, but a little reflection will satisfy him that its position here is a necessary result, consequent upon the shortening and abrogation of the small intestine.

At this point of the alimentary canal we have three openings into the colon or large intestine, (m.) We have the *first* formed by the termination of the duodenum, (Ileo-colic valve;) the *second* formed by the entrance of the pancreatic duct; and the *third* formed by that blind prolongation of intestine known as the 'appendix vermiformis,' (n.)

The colon, or great intestine, (m,) merits our particular attention; by its aid the great function of nutrition is mainly carried on, and the mechanism by which an enormous amount of material shall be absorbed into the system

in so small a space, is well calculated to excite our admiration.

In the dissection, which Fig. 3 illustrates, the upper half of this part of the intestine has been laid open; the gut being suspended by two large hooks which were found loose in the stomach, probably belonging to a huge and partially decomposed cod-fish also in the same situation; in this manner we have exposed a series of valvular folds, which being incomplete in the centre, leave a narrow canal, scarcely larger than that of the duodenum, by which the excrementitious parts of the ingesta are conveyed into the Cloaca, (o,) to be ultimately expelled from the body. The valvular character of these folds is better seen in the lower part of the engraving, where a window-shaped portion of the intestine has been cut away in order to shew also the manner and point at which the folds terminate. The import of this peculiar feature in the alimentary system of Sharks, is, that by such an arrangement, there is furnished an extensive surface of membrane in order to meet the demands of a vigorous absorption, and at the same time this has been accomplished without the incumbrance of numerous rolls of intestine, which would entail serious inconvenience upon a creature destined to make rapid progress through so dense a medium as that in which it lives!

The only other viscera to which I propose to allude are those concerned in the elimination of urine. In Figure 2 the kidneys, (p, p,) appear as elongated bodies, lying parallel to, and connected with, each other, by folds of peritoneum; their ureters unite into a common duct, and enter the bladder, (r,) near its fundus, and this reservoir again finally empties itself into the cloaca. Fearing lest this paper should become too lengthy, the author purposely omits, for the present, entering upon the reproductive and other systems.

Edinburgh, January, 1852.

OCCURRENCE OF THE FISH CALLED MAIGRE, (*SCIOENA AQUILA*.) IN THE ORKNEY ISLANDS.

BY ALEXANDER R. DUGUID, ESQ., M. D.

ON the 23rd. of December last, while a man was employed in a boat in Scapa Bay catching Sillocks, (the young of the *Merlangus carbonarius*,) he observed some agitation on the surface of the water at a little distance, which on a near approach he found to be produced by the motion of a pretty large

fish. He repeatedly attempted to seize it near the tail, and to throw it into the boat, but by violent struggles it escaped from his grasp, and dived out of reach. It did not however remain long under water, and he at last succeeded in getting a firm hold at the gill-opening and threw it into the boat. Having brought it to me, I did not at first recognise the fish, never having seen a specimen before, but after examination I found it to be the *Maigre*. This is the only instance so far as I know of its occurrence in the Orkney Islands; but Mr. Neill records the capture of one which was sent to him from Zetland in 1819.

As it is rather a rare fish on the British coast, a short description of it may not be uninteresting. Length, four feet seven inches; girth, two feet ten inches; depth, one foot; length of head, fifteen inches; colour, grayish brown; fins, reddish brown; scales, large, of irregular outline, somewhat elliptical, measuring in some instances one inch and a half in length, and an inch in breadth; preoperculum, obscurely serrated. The fin rays were in number, first dorsal, nine, with small spine before it; second dorsal, thirty, with spine before it; pectoral, seventeen; ventral, five; anal, seven; caudal, eighteen.

It will be observed that these numbers differ somewhat from what are given in Yarrell's and Jenyn's works, more especially as to the dorsal, but I can only say that the rays were carefully and more than once counted by my friend, Mr. R. Heddle and myself. The swimming bladder was two feet long, and six inches in diameter, and was enormously distended with air, which I presume accounts for the fish being unable to remain under the surface, from its body being specifically lighter than the water; but how it had lost the power of modifying the quantity of air according to its necessities, which fishes must possess, it would be perhaps difficult to conjecture. The bladder was fringed all round its edge as shown by Yarrell.

The fish was not observed to make any sort of noise, either before or after its capture, as related by others. As to its edible qualities, some friends, to whom I had sent portions of it, considered it very good when stewed or grilled. For my own part, having only tried it plain boiled, I should be inclined to pronounce it very indifferent food.

Kirkwall, February 3rd., 1852.

DO ICHNEUMONS PIERCE INSECTS IN THE PUPA STATE?

BY R. MAYSMOR, ESQ.

IN answer to "G" in "The Querist" of November, relative to Ichneumons, perhaps a few quotations from authors upon their general habits may not be uninteresting to some of the readers of "The Naturalist." In speaking of the service of the Ichneumon Flies in staying the encroachments of the Wheat Midge, the Rev. Edwin Sidney, in "Blights of the Wheat," says, "Their peculiar instinct is to lay their eggs in other living insects, *mostly*

when they are in the larva state. Sometimes they oviposit in chrysalides, and occasionally in eggs, but never, it is believed, in any insect while in a perfect condition. The object of their eggs being thus laid is, that they may under these circumstances, which are favourable to their nature, hatch into grubs. These grubs or maggots soon commence attacking the living substances in which they are placed, and ultimately destroy them. The instinct of these extraordinary creatures leads them to the most complete regulation of the number of their eggs by the size of the victim in each case, and that of the larvæ to which they are to give birth. Sometimes they lay a single egg where there is only enough for the support of its grub, but the numbers vary from one to a large quantity. There is scarcely an insect in existence that is not more or less subject to this species of attack; and the Ichneumons themselves vary in size according to the dimensions of the bodies on which they are destined to prey. "Some," says Mr. Kirby, "are so inconceivably small, that the egg of a butterfly, not larger than a pin's head, is of sufficient magnitude to nourish two of them to maturity; others so large, that the body of a full-grown caterpillar is not more than enough for one." It is not the Ichneumon itself, but its larvæ or maggots which destroy such quantities of insects. The Ichneumon is a fly with four wings, whose food is honey; and the female seems to live only for the purpose of depositing eggs in the way mentioned.

"In search of this," we are told by the aged entomologist just alluded to, "she is in constant motion. Is the caterpillar of a butterfly or moth the appropriate food for her young, you see her alight upon the plants where they are most usually to be met with, run quickly over them, carefully examining every leaf, and, having found the unfortunate object of her search, insert her sting into its flesh, and there deposit an egg. In vain her victim, as if conscious of its fate, writhes its body, spits out an acid fluid, menaces with its tentacula, or brings into action the other organs of defence with which it is provided; the active Ichneumon braves every danger, and does not desist till her courage and address have insured subsistence for one of her future progeny. Perhaps, however, she discovers, by a sense, the existence of which we perceive, though we have no conception of its nature, that she has been forestalled by some precursor of her own tribe that has already buried an egg in the caterpillar she is examining. In this case she leaves it, aware that it would not suffice for the support of two, and proceeds in search of some other yet unoccupied." Such are the singular habits of these creatures, thus aptly described. All these processes are, as might be expected, varied according to the number of eggs that may be placed with a hope of safe existence in any one body.

As soon as these eggs are hatched, the young maggots revel in the feast the body of their victim provides, while the supply of food in every instance is regulated with an inconceivable precision, so as just to last these young Ichneumons till they have grown to an age to do without it. Then the

grub or caterpillar on which they have existed dies, or perhaps just retains sufficient vital power to turn into a chrysalis, which at last does not give birth to a moth, butterfly, or any other fly proper to it; but to one or more full-grown Ichneumons, whose larvæ have become pupæ within this case. The author, not many years ago, had a chrysalis which disclosed at the proper time, no less than seventeen Ichneumons, instead of a large moth which he had expected to see emerge from it. Instinct, we are told, upon high authority, is a propensity prior to experience, and independent of instruction: it is verified in these strange operations. The little maggot which springs from the egg of the Ichneumon goes on eating up its prey, devouring every part of it except the vital organs, which it never touches, as if it knew instinctively that the death of its victim would involve its own entire destruction by famine. Some Ichneumons only glue their eggs to the bodies of certain larvæ, because their maggots are provided with instruments for piercing the skin. Others, like the Cuckoo among birds, lay their eggs in the nests of insects, which hatch them to devour their own young. Bees are particularly subject to such insidious enemies. No concealment, unless perhaps under water, seems sufficient to baffle an Ichneumon, and nothing can surpass its perseverance until its eggs are safely placed in the condition suitable to its progeny."

The following would seem easy of proof to all persons. In regard to Ichneumon tipulæ, now called *Platygaster tipulæ*, Mr. Sidney says, "This little *Platygaster* may be readily found on the glumes of the wheat plants, in the months of July and August. It runs rapidly over the ears, and seems to know well which are those occupied by the larvæ of the midge. The author found numbers of them in various wheat-fields in August, 1845; and almost invariably, on examining the ears on which they appeared, discovered that they contained the objects of their search. The Ichneumon hunts for them with the utmost eagerness, and by the aid of a sharp tail places a single egg in each of their bodies. The sight has been witnessed by Kirby, by the following experiment:—A number of larvæ of the wheat midge were put upon a piece of white paper, pretty near each other, and an Ichneumon was dropped into the midst of the group. The energy of her manner, the rapid vibrations of her antennæ, and the whole of her attitudes, were most amusing. On approaching one of the larvæ her agitation quickened to the utmost intensity; she soon bent her body in a slanting direction beneath her breast, applied her tail to the larva, and, becoming still as death, sent forth her curious sheath and deposited her egg in the victim, which writhed considerably under the operation. If she came to one that had previously an egg in it, she left it in an instant, and sought another, for the *Platygaster* lays but one in each. This, however, often repeated, destroys a great many of these devastators of the grain."

Each species of Ichneumon is restricted in its attacks to one, or at most to a few, particular species of caterpillars. Mr. Stephens states that he possessed

eight hundred British species of the Ichneumonidæ. From the foregoing I think it would appear there is abundant proof that Ichneumons pierce insects in the larva state. Speaking generally it will be found that writers upon the subject say that it is while in the caterpillar state that insects are attacked; and it seems much more natural to suppose it should be when in this soft state than when the insect has put on a stout protecting case, as during the chrysalis period. I should hardly think it possible for the Ichneumon, which is parasitic upon *Trichiosoma lucorum*, to pierce with its slender ovipositor the tough and leathery cocoon of that Saw-fly. Doubtless certain species of insects are attacked in one stage of their existence, and in that only. It would not be supposed that the same Ichneumon fly would attack an insect both in the larva and chrysalis state. That the *larvæ* are really attacked there can be no doubt; for I find it stated in the "Penny Cyclopædia," by Mr. Waterhouse, I presume, that "Instances are not uncommon in which the eggs of the Ichneumon hatch in the body of the living caterpillar; and what is most remarkable, they do not destroy its life. It is not until the *larvæ* have quitted their abode in the caterpillar that it dies." The same writer states, "In most cases these eggs are not hatched until the caterpillar has changed into a chrysalis; they then hatch, and the Ichneumon *larvæ* feed upon the contents of the pupa case, enclose themselves in silken cocoons, and undergo their final transformation, to come forth in proper season, eating their way through the chrysalis case."

I shall be glad if this interesting subject receives further attention in "The Naturalist," and, above all, positive testimony from personal observation.

Devizes, February 3rd., 1852.

Miscellaneous Notices.

Curious instinct in the Rat, (Mus decumanus.)—A friend of mine observed in a ditch a hole eight inches deep, and five in diameter at the mouth, shaped like a funnel, with a small quantity of water in it, not a drop of which could escape, the inside being so securely puddled round. A well-beaten path ran up to the hole, evidently made by some small animal. He stopped it up, but on visiting the place next day found it re-opened, and all as neatly executed as before. The circumstance exciting his curiosity, he set a trap, and succeeded in capturing a large Rat. From the smoothness of the sides of the hole, and the clearness of the water, it is evident these animals resorted thither for the purpose of quenching their thirst, by dipping in their tails, and afterwards licking them. It is the opinion of my friend that this stratagem was attributable to a pool having been filled up, from which they previously drank.—HUBERT BEADLES, Broadway, May 5th., 1852.

The Short-tailed Field Mouse.—Some workmen while ploughing a few days since, turned up three or four Short-tailed Field Mice. They were all ensconced in a snug little hole, with plenty of dried grass roots, etc., to keep them warm for the winter, and a pretty good larder to boot, in case of premature and temporary recovery from torpor. This larder was composed of, (if the workmen are to be credited,) pretty nearly half-a-peck of wheat.—MARTIN CURTLER, Beverege House, Worcester, February 10th., 1852.

The Swallow, (Hirundo rustica.)—I am informed by the Rev. W. F. Cornish that a Swallow was shot at Dittisham, on the Dart, the week before last.—S. HANNAFORD, JUN., Totnes, April 7th., 1852.

In Mr. Doubleday's "Synonymic List of British Lepidoptera," he places the *Orgyia v-nigra* among the "reputed British Bombyces," omitting it accordingly from the British species. But it is an indigenous moth, for a school-fellow of mine, (now the Rev.) Henry Hilton, caught one himself, in one of the summer vacations, near Feversham, Kent, and brought it back with him. It then passed into the collection of Mr. Abraham Edmonds, of Worcester, now I believe of London, where I subsequently saw it myself.—FRANCIS O. MORRIS, Nafferton Vicarage, Driffield, May 21st., 1852.

Misseltoe.—In the neighbourhood of Blackheath, the Misseltoe is growing upon the Willow. In Hawnes Park, near Bedford, it grows upon the Beech.—H. J. C.

COMPARATIVE TABLE OF THE PHENOGAMOUS, OR FLOWERING PLANTS, AND FERNS,
AND ALLIED SPECIES OF THE BRITISH ISLES, DEVONSHIRE, AND THE NEIGHBOURHOOD OF TOTNES, DEVON.
BY S. HANNAFORD, ESQ., JUN.

	Phenogamous Plants.	Ferns and Allied Plants.	Total.
British Isles, per "London Catalogue," 1850,	1371.	57.	1428.
Devonshire, per "Flora Devonensis," 1829,	774.	30.	804.
Totnes, per "Flora Tottoniensis,"			
within a range of six miles, 1851,	460.	23.	483.

Nuphar lutea.—These flowers are found in the River Alt, a small stream running into the sea, after a somewhat tortuous course, at Formby, a few miles south of Southport. *Nymphaea alba* also grows in this neighbourhood, but never having obtained it myself, I cannot give its exact locality.—J. A. ROBINSON, Wycollar Cottage, Southport, Lancashire, January 12th., 1852.

Review.

Class Book of Botany: being an introduction to the study of the Vegetable Kingdom. Part 1.—Structural and Morphological Botany. By J. H. BALFOUR, M. D. With more than one thousand illustrations. Edinburgh: A. AND C. BLACK. London: LONGMAN. 1852. p. p. 357.

To those who wish to *study* Botany, and to understand the structure, nature, and uses of the various parts of which plants are composed, and we trust all the Botanical readers of "The Naturalist" are of this class, we know of no book that we could with greater confidence recommend than the above. Dr. Balfour's high character as a Botanist is amply sustained in the very valuable work before us; it is strictly confined to an elaborate, and at the same time remarkably clear, description of the structure of plants as shewn in the present day, by the microscope—in no department of nature perhaps have more discoveries been made by this instrument, than in Botany. The engravings exhibiting minute vegetable structures are remarkably plain and good, and will be of very great assistance to the student who is unable to command the help of a microscope, while to him who possesses one they will greatly simplify the knowledge of the vegetable preparations he may possess or make. In the outset, too, some concise directions are given for using the microscope; and the best method of mounting structures which it may be desirable to preserve is also detailed.

Dr. Balfour commences by describing the structure of cells, and then goes on to that of vessels, or *elongated cells*, of various kinds. The contents of vegetable tissues and a description of the cuticle conclude the first chapter. The second chapter is devoted to the nutritive organs of plants, including the root, stem, and leaves. Chapter three embraces the re-productive organs

of flowering plants, while the fourth and last chapter describes the nutritive and re-productive organs of flowerless plants, including the Ferns, Mosses, and Sea-weeds. When it is stated that about three hundred and sixty pages are divided among these four *chapters*, some idea of their extent may be formed, but, unless seen and carefully read and examined, only a faint idea of the amount of valuable information contained in them will be obtained. Every page of the work is profusely illustrated by well-designed and executed wood engravings, and one feature of this department strikes us as particularly good, namely, that in every instance there is a full description of the engraving in a note referring to its number. We particularly mention this, as in many well-illustrated books much of the good that might be derived by the young student is lost to him, from want of some such assistance as is here given.

In Dr. Balfour's Class Book of Botany the student will, for a few shillings, obtain what in our days of pupilage was unattainable, and may commence the examination of flowers with far more positive and intimate knowledge of their structure, than he could hope to reach after many years of study and labour, without this or some similar book. We cordially recommend the Class Book to our readers, and can only regret that the crowded state of our pages prevents our entering as much into detail as we could wish; we have, however, no fear of any one who purchases this book on our recommendation being disappointed in its contents.

Proceedings of Societies.

Entomological Society.—At an ordinary meeting of this Society, held the 3rd. of May, 1852, at 17½, Old Bond-Street, J. O. WESTWOOD, Esq., President, in the chair, it was announced that the council had determined on offering a prize of £5 for the best "Essay on the duration of life in the three different kinds of individuals of the hive-bee," a subject, not only interesting, but practically useful to the bee-keeper. The essays to be sent to the Society's rooms on or before the 31st. of December next, and addressed, in sealed envelopes, "To the President and Council of the Entomological Society of London," with the word "Essay" in the corner. Real names and addresses of the essayists to be given.

The Secretary read an extract from the "Entomologische Zeitung," that *Lithosia depressa* and *L. helveola* are only the different sexes of the same insect; also an extract from Mr. Robert Fortune's "Journey to the Tea Countries of China," showing how the attacks of mosquitos may be prevented by what is called mosquito tobacco, a kind of jostick, used commonly in China for that purpose. Wherever that preparation is burnt, the mosquitos will not come, and immediately seek other quarters on its being brought into their vicinity. Surely the inhabitants of those countries where these little scourges abound, and especially travellers, owe much to Mr. Fortune for making this invaluable remedy known.

Referring to what transpired at the previous meeting of this Society, relative to the ridding of houses of the Common Black Beetle, (*Blatta Orientalis*), the President read a letter he had received from a gentleman detailing the particulars of a plan he had found highly effective. It consists merely in having a round hole cut in the kitchen hearth-stone, large enough to admit of a basin being inserted so that its rim is on a level with the stone; the basin is then baited at night with bread-crumbs, beer, &c.; the insects fall in and cannot effect their escape, and are easily destroyed in the morning with boiling water, if required. During the day this simple contrivance may be covered over with an iron plate similar to a coal-plate.

DR. SUTHERLAND, lately from the Arctic regions, who was present as a visitor, exhibited, through Mr. A. White, some *Podureæ* he found there upon the ice, which appeared identical with the *Dessirea* found on the glaciers by Agassiz in the Swiss Alps.

During the evening various papers were read on different orders of insects brought home from China by Mr. Fortune, which contained many novelties.

The Querist.

In the last number of "The Naturalist," I perceive a question is asked by S. Hannaford, Jun., as to the origin of the word "Wort," used in Botany. It is derived from the old Saxon *Vyrt*, or *Veort*, (Dutch, *Worte*,) signifying a herb, or plant generally. It is also sometimes used to denote a plant of the cabbage family by some old authors; and in other cases to denote "new beer," either fermented or not.—JOHN L. WIGHT, London, June 4th., 1852.

Wort.—This word is derived from *Pypr*, *Peopr*—Saxon; *Worte*—Dutch. Originally it was a general name for a herb, and is still preserved in *Lousewort*, *Lungwort*, *Spleenwort*, *Spearwort*, *Spiderwort*, *Woundwort*, &c., that is, a herb having specific (supposed) properties for destroying Lice, for curing affections of the Lung, and Spleen, or a herb having hastate, or spear-shaped leaves. In Latin we have *Caulis*, or *Collis*, the Cabbage Colewort. In German, *Kraut*. *Benediktenkrant*, *Herb-beicet*; *Leus-krant*, *Louse-wort*. (Refer to "Todd's Johnson's Dictionary," Fourth Edition.)—R. WILBRAHAM FALCONER, M. D., Bath, June, 1852.

In reply to the query of your correspondent, Mr. Hannaford, as to the origin of the word "Wort," I beg to say that it is no other than the Anglo-Saxon "*Wyrt*," or "*Wurt*," (differing only in orthography,) and is synonymous with "herb," which is from the Latin "*herba*." Hence the name "*Woundwort*" would imply "the herb (wort) for wounds;" and so on with regard to the other words cited by the querist. In further illustration of the signification of this term, it might be remarked that in Anglo-Saxon it is frequently compounded with other words, as "*Wyrt-bed*" a herb-bed; *Wyrt-drenc*, a herb-drink, a purgative; *Wyrt-geard*, a wort-yard—an orchard; *Wyrt-weard*, a plant-keeper, or gardener.—I. W. N. KEYS, Plymouth, June 1st., 1852.

Wyrt.—Anglo-Saxon herb, plant, a general term. In old German, *Würze*, herbs. Modern German, spices. *Urt*—Danish. *Ort*—Swedish. *Urt*, *jurt*—Norse. *Ort-geard*—Anglo-Saxon, a garden—an orchard.—W. GRAY, York.

T. P. Fernie.—Mr. Thwaite's receipt for a fluid for mounting and preserving *Algæ* in.—Sixteen parts of distilled water; one of spirits of wine, saturated with creosote, and carefully filtered through chalk, and then mixed with the same quantity of Camphor water.—ISABELLA GIFFORD.

In answer to Mr. Fernie, in the Querist for this month, I would point out to him, in addition to the fluids recommended in Quekett's work on the Microscope, for preserving *Conservæ*, &c., the following solution of Corrosive Sublimate in water, of which Harting, of Utrecht, thus speaks—"For preparations of delicate vegetable tissues, and, in general, of all tender organs in which it is desired to retain the starch globules and chlorophyl unaltered, for fresh-water *algæ*, *diatomaceæ*, *conservæ*, *infusoria* belonging to the division *rotifera*, &c., a solution containing one four-hundredth, or one-five hundredth of Corrosive Sublimate is the best preservative with which I am acquainted." He also says "The blood corpuscles can be preserved unaltered in no other fluid with which I have experimented. The corpuscles of the frog require a fluid containing one four-hundredth of Corrosive Sublimate; those of birds one three-hundredth; of mammalia and man one two-hundredth."—R. MAYS MOR, Devizes, May, 1852.

Birds' Nests.—1st.—Has any ornithologist treated of the arrangement of the materials of birds' nests, in reference to their respective powers of conducting heat? or 2nd., of the different altitudes at which birds build their nests? or 3rd., whether the latter has any, and what reference to the powers of flight in birds?—R. WILBRAHAM FALCONER, M. D., Bath, June, 1852.

I should feel much obliged to Mr. Mc'Intosh, or any of your correspondents, who would favour me with a complete, or full list of the hardy-growing British Trees that will grow from slips or cuttings.—F. ORPEN MORRIS, Nafferton Vicarage, Driffeld, May 21st., 1852.

LETTERS OF AN ORNITHOLOGIST.

LETTER I.

[SINCE the commencement of the past winter, these and other letters, written by Mr. Graham, of Iona, have formed part of a correspondence I have had the happiness to enjoy with that gentleman; and I believe they contain so much that is interesting to the ornithologist, apart from their pleasing style, that many readers of "The Naturalist" will gladly excuse the mode in which the information is conveyed to them. The receipt of these communications has afforded me the liveliest satisfaction; and I am sure none will regret they should have been offered for perusal. It may be proper to observe that their enthusiastic author is not aware of the use to which they are now put.—*R. G.*]

Iona, February, 1852.

WE have now fortunately begun to enjoy some pleasant weather, and I took advantage of the very first of the fine days to launch my boat and go round to the back of the island, to make an attempt upon a flock of Long-tailed Ducks, which have been there all the winter; and I succeeded in killing a pair of fine males. One of them was in such fine plumage, and so little hurt, that I felt sorry I could not send him to you as he then appeared, looking beautiful even in death, without having to spoil his good looks by our clumsy hands in the operation of taking his jacket off.

A fine accessible Raven's nest, full of eggs, was wantonly destroyed by a boat's crew of blackguard fishermen last year. The nest had been there for a course of years, and the natives never meddled with it: it is on a wild secluded cliff overhanging the sea, and the place was not *canny*! voices were heard there—the thin voices of spirits! The Raven is not a canny bird, especially those who were under special spiritual protection; and so there it remained. I never heard of it till last year, as I suspect it was intentionally concealed from me; for when I did discover it, several of the islanders, including the village tailor, begged of me most earnestly not to think of *harrying* the nest, or in any way to interfere with the foul fiend! Unfortunately I was a day too late last year: I hope the vengeful spirit of the desecrated nest overtook the fishermen with a good ducking before they got home, and a foul wind ever after! I despaired of the Ravens returning, but yesterday the old shepherd, (whose heart I had just enlarged by the presentation of six inches of pigtail,) informed me that the *F'v'ich*, or Ravens, had nearly finished building their nest in the old place. I hope that I may get them if all goes right, even though it should be necessary to take a basin of holy water from St. Columb's cell to dash into the nest and dislodge the *deil* from his eggs.

Collecting eggs, however, is as uncertain and full of disappointment as even wild-fowl shooting, and this is why I speak so cautiously in the list I have just written; for many of these eggs, though very plentiful at the islands,

must be procured at exactly the right time; and from the uncertainty of the weather it is not always possible to get them. Last year, for instance, being a week too late, out of nearly every Puffin's and Black Guillemot's hole, instead of an egg, I extracted an unpleasantly soft, downy, dirty, little object, which I was glad to return again, receiving for my pains a furious nip from the old one; and a Puffin's bite is really no joke; it is as bad as a Parrot's, and he holds on like a bull-dog. The most cautious mode of proceeding, when you wish to take up a live Puffin, is to give him a gentle tap on the head to confuse him, and quickly grasp him round the neck before he has time to catch your fingers. But one cannot be cruel to a Puffin, for his comical look would make a Cynic laugh.

I have not met with the Sandwich Tern here at all, though the Common and Arctic Terns, especially the latter, breed in profusion, so that we use their eggs as an article of food; but I will keep a watch for it next year. The Hooded Crow's eggs are most numerous, as these odious birds are most extraordinarily abundant, and they are very persevering in nestling, although their nests and eggs are continually destroyed. Last year I witnessed a very striking instance of this, for, finding a nest, I waited till it contained five eggs, and then took them. A few days after I examined it, and found three eggs, which I took, and destroyed the nest. About a fortnight later I found a new nest built not a gun-shot from the old situation, containing four eggs, which the hen was hatching. From the lateness of the season, as well as the proximity of the situation, I hailed her as my persevering old friend.

I am informed on undoubted authority, that it is a common trick for young people to remove the Hoody's eggs, and replace them with Bantam's eggs slightly rubbed with indigo, which the Crow hatches most faithfully; only they must be removed immediately from the nest, before the foster-mother has time to destroy her spurious brood. I have so far witnessed this experiment, that four small Hen's eggs, which I placed in a nest, were most faithfully covered by the Crow for ten days, when unfortunately they were taken away by a mischievous boy. A much more cruel trick is that of boiling the eggs hard to prevent their being hatched, and consequently the poor bird sits on them till she gets so exhausted as to be incapable of flying, and so falls alive into the hands of her young tormentors. A young one taken from the nest becomes a useful garden scavenger, destroying all kinds of injurious insects.

I hope to get some new eggs this season, by setting the boys on the search among the moors over in Mull; but it is not easy to get the people to understand why you want eggs. An egg collector in the Highlands must go armed with a roll of tobacco in one pocket, and halfpence and lozenges in the other; the one for shepherds, the other for herd-boys, and then he will gain their sympathy and good-will. St. John, in his "Tour in Sutherland," when inquiring about an Eagle's nest of an old shepherd, breaks out into a lamentation upon the reserve of the Highlanders, "who seem to have a

suspicious dislike to giving information." It is a wonder that such an old sportsman should not have been acquainted with the talisman which unlocks the cannie lips of old Donald. A little *sneeshin*, or a few inches of tobacco, at once goes to the heart of the old mountaineer; but it must be given in the right way, not as you would throw a beggar a halfpenny, but with such a remark as "maybe you're out of tobacco to-day, Donald," or "try this Sandy, and tell me if it's good or no." The *gentle weed* is the great mollifier among the wildest nations; the Arab exchanges pipes on meeting his friend, as an assurance of his good faith, and the American chiefs dispel the impending war cloud by a few whiffs from the pacific calmut. Had tobacco been discovered in the middle ages, I will answer for it that those warlike barons would have stopped at home and smoked their pipes upon their castle walls, instead of galloping about the country cutting people's throats.

I am on the eve of starting on a trip to the north-west extremity of Mull, where there is a loch famous for Widgeon and other Ducks. I shall take a boat and one hand, touching, if it is possible, at Staffa on the way, for Geese abound there. I wish I could have the pleasure of your company: I have plenty of feathered society indeed, but I would rather, for a companion, have one of Plato's two-legged animals without feathers! The time of my absence will depend entirely upon the wind.

LETTER II.

Iona, March, 1852.

You will be glad to hear that the charm of the Raven's nest has been broken, that we attempted it last week, and succeeded in *harrying* it. It contained five eggs; and I will willingly consign to you my share, though I have a companion who lays claim to half of the plunder. The nest was situated on a very dangerous cliff, not in the same place as the old nest. The beetling crag overhung it so as to make it invisible from above, except from a projecting ledge about a gun-shot further on. The old shepherd had stipulated with me that the Raven was to be shot; but he was so eager to point out the right position for seeing the nest, that he obstructed my aim at the critical moment of the bird's launching herself off the nest. Shepherds of course have a hereditary hatred of Ravens, but I was glad that she escaped, as I have no grudge against her, and I could not have saved her *skin*, for she would have fallen into the stormy waves far down beneath the nest. I was disappointed in the size of the eggs, as they are not larger than those of the Hooded Crow; they are of a longer shape, and their colour is a fine deep greenish blue, and with few or no spots.

I was out walking this evening, since writing the above, and I saw the two Ravens evidently choosing a locality for trying a new nest. One of them had a piece of moss or wool in its bill. They are apparently disposed to try the opposite side of the island for their new habitation. Though I did not go after them, for fear of frightening them from their intention, yet I have a

good idea of the spot they will choose—a precipitous cliff, generally tenanted by a pair of Kestrels and several Hooded Crows. The latter seemed jealous of this encroachment, and two pairs of these Crows constantly followed them with vociferous cries; the short, angry bark of the Ravens warned them not to interfere with them; but the Hooded Crow is a bold, determined fellow, with powerful bill and claws, too, which he uses with effect in a skirmish. His cries also never fail to collect all his clan to his assistance: in this way I have often seen Kestrels and Merlins miserably hustled; and the lordly Peregrine does not pass without being insulted. They pursue the small Hawks with great venom and fury; and although I never saw a battle terminate fatally, yet I have occasionally met with their bones and carcasses. On one occasion I picked up a fine Buzzard, only a few hours dead, with no mark of violence but a slight wound upon the head. How deceased met with his death there was not sufficient evidence to prove, but I was tempted to return a verdict of wilful murder against some Hoody or Hoodies unknown.

I returned yesterday from a short cruise about the north-west parts of Mull. I was disappointed in my expectations of getting Widgeon, as they had got very shy since the fine weather set in, though I saw some large flocks floating about the lochs, but keeping far out of range, even of swan-shot. The only good fortune I had was while rowing through the sound of Ulva, where I saw a party of three Great Northern Divers very busy fishing, and calling to one another with loud hoarse shouts. I rowed up close to one, and fired a charge of No. 7 into him at thirty yards, and, without stopping, held on in the direction of his consort, who had dived at the report, but rose again close to the boat, and another shot stretched her on her back. The third was not much scared, but would not let me approach him, and I was not very anxious to pursue him. These are very large birds, and they weigh, I am sure, fourteen pounds each, though I have not weighed them yet. The skin of one is very little hurt, which I will try to preserve: they are only in their plain winter garb.

Immediately after meeting with these great monsters, I found myself surrounded by the other extreme of the family of Colymbidæ, namely, three most minute little Dobchicks, or Grebes. Their activity utterly set my shooting at defiance; and, with a heavy boat deeply laden with ballast, I could not attempt pursuing them till they were fatigued, which is the only mode of getting them. I remembered your inquiries about Grebes; but as there are a few in our neighbourhood, in Mull, I intend to take a light punt to pursue them with, and so I will defer making any remarks concerning them till after this opportunity of studying their habits. Yesterday, in returning home, my mate and I had to pull the entire distance, twenty-five miles; which gave us hard work from two p. m. till ten, besides a walk of ten miles over the hills in the morning.

(To be continued.)

THE NEST OF THE KINGFISHER, (*ALCEDO ISPIDA*.)

BY "LYCIDAS."

It appears to me somewhat strange, that in this age when everything is well nigh reduced to a fact, and craving curiosity pries into every work of nature—too often for some utilitarian end—that our tropical-coloured little Halcyon—ill fated—because so beautiful, should still succeed in mystifying the intruder on her haunts, and leave something yet for the mind to speculate upon.

I see in vol. i., page 22 of your periodical, that a very agreeable correspondent expresses a doubt as to the construction of the Kingfisher's nest, and again at page 57, I find it stated by another contributor, that this bird does not construct its nest of ejected fish bones, but lays its eggs on the bare soil the first year of its occupation of the hole, but in the second and following years incubates on the castings of the young of the first year. It is neither my wish or intention to enter into any polemical discussion, but I would simply desire to give you the result of a very slight and superficial observation. In an evil hour, under the influence of some cruel demon, who reigns supreme over egg collectors, I have sacrilegiously pillaged the nest of this, the most 'besung' of all birds, and have ever found the eggs placed on a small quantity of minute fish-bones at the extremity of the hole.

It is still fresh in my mind, as a great epoch in my life, the thrilling excitement I felt, when as a truant school-boy, I first marked the Kingfisher to her hole. Great were the demonstrations of friendship shewn me by many of my school-fellows, following the same pursuit as myself; many were the offers to assist me in taking the nest, but I kept my own councils, for I calculated on another prize the next season, as I knew well that the birds would construct their nest again at no great distance from their old hole. Well, this proved to be the case, for the same pair of birds worked their hole the next year within a few feet of their old nest, and I again robbed them, and still found the eggs placed on fish bones, differing only from the nest of the former year, inasmuch as there was perhaps a smaller quantity of fish bones, and the hole was free from excrement, whereas I found the nest of the first year exceedingly offensive, arising from the large quantity of the fæces of the young, the same hole having doubtlessly descended through several generations as a patrimony in the family. In after years, long since the time I have just alluded to, I blush to say that I again robbed a Kingfisher's nest; and again in the following spring I found the *new* nest containing fish bones, as in the case I have before alluded to.

In making the foregoing observations, I would not wish to be understood as impugning in the remotest degree the statements, or denying the accuracy of the research of your correspondents,—mine may be the exception, theirs the rule.

It has often been my fortune to watch this little bird for hours beside the rippling stream, "where the dark trout leaps;" the beauty of its plumage, and

its somewhat curious nature have ever fascinated me. If you incautiously advance suddenly on her haunts, your inquiry is awakened, but not appeased, for the eye is just dazzled for an instant by something as brilliant and rapid as a meteor, shooting down the margin of the stream. But if you advance quietly, the Kingfisher appears to extend confidence to man, and you may then see her sitting motionless on a willow spray overhanging the water, like some pendent and beautiful flower, resplendent in the sun of a warmer clime. If you have patience, and it is a virtue indispensable in a naturalist, you will see her suddenly dart from her resting-place, hover for a moment over the brook, like some daintily-painted butterfly, ere it pitches on its chosen flower, and then in mystery is lost to your gaze, leaving only a faint ripple on the stream as a conjecture whither she has vanished. You are not however long in anxiety as to her fate, for in the twinkling of an eye she regains her favoured seat—usually some old branchless trunk—with the hapless minnow in her mouth. Nature, in her ever just distribution of the beautiful, seems to have given this little bird its gorgeous plumage, as a compensation for its total absence of song. The only note I have ever heard her tune, is a mournful and singularly-plaintive whistle, should you advance near her nesting-place, which freshens in one's memory Ovid's sorrowful tale of the Shipwrecked and transformed Ceyx, and the devotion of his Queen.

Where the stream suddenly winds, the waters washing with some force against the contending bank, play back in a rippling eddy; here, the bank being usually high, and free from the burrowings of the water-rat, the Kingfisher loves it for a home to incubate and rear her callow brood. The practised eye can never fail to discover her nest. The hole is almost invariably about a foot from the top of the bank, and of nearly a circular form; its length averages about four feet, and at the extremity is somewhat larger, and hollowed out in a circular form. These little birds appear fully to understand the principle of drainage, for you always see a gradual fall from the nest to the entrance of the hole, so as to allow the fæces of the young to run off; and indeed so well does their ingenuity succeed that it is often their betrayer, for the excrement finding vent at the entrance of the hole, tells the plundering youth that it is the home of the Kingfisher. I have read somewhere in books, written I think by men who have observed but little for themselves, that this bird often constructs its nest in the hole of the water-rat. I have ever endeavoured to discover that such is the case, but I have always found that on the contrary the Kingfisher carefully avoids rat's holes, and selects such a position in the bank for her nest, as is out of the reach of these animals, and far above high water mark. The eggs are generally five or six in number, and of a delicate pink hue, but when blown become of a beautiful enamelled white. They soon however lose their transparency, unless the thin membrane which encircles the inside of the shell be extracted, when they retain their grained appearance for a long period. The eggs are placed on a small quantity of minute fish bones, (probably as much

as could be held in one's hand,) which I have always taken to be the castings or pellets of the old birds, rather than the fœces of the young, as I have seen them in nests never tenanted by young birds, and have found them to be quite white and free from excrement.

If we are not yet quite familiar with the economy of the Kingfisher, it is a pleasure to reflect that the ornithological intelligence of the age, shines in striking contrast with the quaint ignorance of the first century in our christian era; for my eye happened a short time since to alight on the following passage in Pliny, which may prove somewhat amusing from its curious phraseology and strange research:—"The Halcyones are of great name and much marked. The very seas and they that saile thereupon know well when they sit and breede. This very bird, so exceeding notable, is little bigger than a Sparrow: for the more part of her plumage, blew, intermingled yet among with white and purple feathers, having a thin small neck and long withall. There is a second kind of them breeding about the sea side, differing both in quantitie and also in voice; for it singeth not as the former do, which are lesser, for they haunt rivers, and sing among the flagges and reeds. It is a very great chance to see one of these Halcyones, and never are they seen but about the setting of the Starre Virgilie, or else neere midsummer, or midwinter when daies be shortest; and the times whiles they are broodie, are called the Halcyon daies; for during that season, the sea is calme and navigable, especially in the coast of Sicilie. In other parts also, the sea is not so boisterous, but more quiet than at other times, but surely the Sicilian Sea is very gentle, both in the streights and also in the open ocean. Now about seven daies before midwinter, that is to say, in the beginning of the month of December, they build: and within as many daies after they have hatched. Their nests are wonderously made, in fashion of a round bal, the mouth or entrie thereof standeth somewhat out, and is very narrow, much like unto great sponges. A man cannot cut and pierce the nest with sword or hatchet; but breake they will with some strong knoeke, like as the drie foam of the sea, and no man could ever finde of what they be made."

Another great writer of rather a later date speaks of the Kingfisher's nest as follows:—"It is the bones of some fish, which with her beak, and other instruments she joins together, interlacing them some lengthwise, and others across, and adding ribs and hoops in such manner, that she forms at last a round vessel fit to launch, which being done, and the building finished, she carries it to the edge of the sea beach, where the waves beating against it, shews her where to mend what is not well joined and knit, and where better to fortifie the seams that are leaky, and open at the beating of the waves; and on the contrary, what is well built and has had due finishing, the beating of the waves does so close and bind together, that it is not to be broken or cracked by blows either of stone or iron without a great deal of trouble. What is still more to be admired is the proportion and figure of the cavity within, which is composed and proportioned after such a manner that it is

not possible to receive or admit any other thing, save the bird which built it, for to every thing else it is so impenetrable, close, and shut, that nothing can enter, not even the water of the sea."

If, after all, this Iron Age of Mechanism—"these dregs of life"—is not fraught with much of love and taste for Nature's simple charms, we at all events, in Zoology, approach nearer truth than did the dwellers upon the land in those days, "whence our fabling Poets took their Golden Age." I lament, however, that the Spirit of the Times has now no faith in the genial influence of the Hælyon days, for never was tranquility and repose more required by wearied and shattered man.

I hailed, Sir, with delight the advent of your periodical, which is based on such a plan as will render it accessible to every one, from the peer to the peasant; for I was ever taught in childhood, and the belief has ripened with my years, that the study and appreciation of the good and beautiful in Nature, are elements necessary to breathe into society a truly healthy and moral tone. It has always seemed to me that those lines of our Poet Coleridge are singularly beautiful, and teem with truth—

"He prayeth best who loveth best
All things both great and small,
For the dear God who loveth us
He made and loveth all."

Those who have been trained in the harsher rudiments of schools, and have been inculcated with the arid doctrines of scholastic dogmas, may, though strangely recognising the force of allegory, disapprove of reality, and object to Nature as a guide to truth, yet, it is my conviction, that there cannot be a more suasive appeal to the waverer, or infidel in faith, than the charms and magnificence of Nature; she touches at once the affections and the finer feelings of man. In truth did one of the greatest founders of Natural History, Linnæus, the memory of whose departed genius can never fade, inscribe in golden words, "That he who does not make himself acquainted with the all-wise Providence from the consideration of Nature, will scarcely acquire knowledge of Him from any other source, for if we have no faith in the things that are seen, how should we believe those things that are not seen."

THE HOUSE MARTIN, (*HIRUNDO URBICA*.)

BY JOHN DIXON, ESQ.

DURING the spring of 1851, a couple of Martins built under the eaves of a new house, at Moor Allerton, the residence of a friend of mine. The nest occupied about eight days in building, and when completed, an audacious cock Sparrow uncereemoniously took possession, and kept the rightful owners out. They made every exertion to dislodge the intruder, and for some time kept up a most vigorous assault; but could make nothing of their troublesome

customer, who presented his hard horny beak at the entrance, and kept his position most manfully. Tired with this skirmishing, they flew off, but presently returned with a strong force of comrades. The attack again commenced, and the Sparrow was at last dislodged, but not until the nest was partly demolished. It was again repaired, but from some unknown reason the Martins forsook it.

The Sparrow again took possession, accompanied by a mate; their noisy proceedings led to another scrape. The hen was shot, and the old cock narrowly escaped the same fate. In the course of a few days he forgot his sorrow, picked up another mate, and once more determined to try his luck at the old quarters. "Fortune favours the brave," such gallantry had won him some compassion; he once more enjoyed his airy lodgings unmolested, and turned out a numerous brood in safety. The nest is again occupied; we are daily looking for the Martins' arrival, and quite expect our noisy friends will meet with a warm reception.

Leeds, April 15th., 1852.

THE GABBLE RATCHET.

BY JOHN DIXON, ESQ.

MANY of our country friends, when out late on a still dark evening, may have often been startled at hearing a singular noise overhead, produced by some invisible agency. It is heard all the year round, most frequently in shady lanes and by the sides of plantations; the gloomy character of which at such times tends to conjure up ideas not the most soothing. It is unquestionably produced by some bird on the wing, and much resembles the shrill sharp cry often uttered by the Lapwing towards nightfall. The country folks in the north of Yorkshire call it the Gabble Ratchet, and very readily class it amongst the supernatural; gravely telling of its being the soul of an unbaptized child, doomed to flit about after nightfall, for the purpose of frightening a host of silly rustics and superstitious old women, who always prophesy some bad luck attendant on hearing it.

Gilbert White, in his "Natural History of Selborne," writes "Those that are much abroad on evenings after it is dark, in *spring* and *summer*, frequently hear a nocturnal bird passing by on the wing, and repeating often a short quick note. This bird I have remarked myself, but could never make it out till lately. I am assured now that it is the Stone Curlew." If the noise mentioned by White, be similar to the Gabble Ratchet, it cannot be produced by the Stone Curlew, a migratory bird quite unknown in this district. Many suppose the Goatsucker produces it; but the fact of its being heard in the depth of winter, shatters that supposition. It is a curious mystified subject, worthy of attention, and probably some of your many readers may be enabled to throw more light upon it.

Leeds, April 15th., 1852.

RARE BIRDS NEAR LYNN.

BY T. SOUTHWELL, ESQ.

THE following rare birds have occurred during the past autumn and winter in this neighbourhood:—

Spotted Redshank, (*Totanus fuscus*.) shot at Clenchwarton, September 11th., 1851.

Sandwich Tern, (*Sterna Boysii*.) shot at Hunstanton, September 6th., 1851.

Honey Buzzard, (*Pernis apivorus*.)—A fine adult male specimen shot at Terrington, in November, 1851.

Great Northern Diver, (*Colymbus glacialis*.) shot at Thornham, about the 4th. of December, 1851.

Red-throated Diver, (*C. septentrionalis*.) has occurred several times during the past four months; the last I saw was taken alive in a fishing-boat on the first of May; it was just assuming the red throat: the others were all young birds in the plumage of the first winter.

Shoveler Duck, (*Anas clypeata*.) has also occurred several times during the past winter.

Pink-footed Goose, (*Anser brachyrhynchus*.)—Two specimens in December, 1851.

White-fronted Goose, (*A. albifrons*.)—Several specimens towards the end of January, 1852. From the mild nature of the winter, and the inland waters remaining open, the number of Wildfowl frequenting the estuary of the Ouse has been unusually small, and but few scarce specimens have been obtained; scarcely an individual of the genus *Anser* having occurred, except during a little severe weather in December and January.

Black Grouse, (*Tetro tetrix*.)—A female was shot at Clenchwarton, during April last.

I might also mention three specimens of the Polish Swan, (*Cygnus immutabilis*.) shot out of a flock of thirteen, at Ingoldisthorpe, in December, 1851, supposed to have left the waters at Holkham.

Lynn, Norfolk, May 14th., 1852.

ON THE SUBMERGENCE OF BIRDS.

BY O. S. ROUND, ESQ.

SINCE reading the Editor's excellent article in the first volume of "The Naturalist," on this subject, I call to mind several observations which I have myself made upon it, and which all go to corroborate his view as the correct one. I have stood for hours watching the Dobecks, (*Podiceps minor*.) and Water-hens, (*Gallinula chloropus*.) on a large pond not far from our country

residence, and these birds were for the greater part of the time with little more than the bill above water, which was very clear; if I suddenly ran round to that part where they were lying near the shore among the rushes, I could see them swim only just beneath the surface with the same ease as upon it; and these birds, (*Gallinulæ*,) are, as we know, waders more than swimmers; although in the instance I speak of, nothing could be more perfect than the command of subaqueous motion which they displayed. I think, however, the bird most perfect in this qualification, is the Water Ouzel, (*Cinclus aquaticus*.) I recollect very well when I was at Ambleside, being struck with astonishment at the almost amphibious gambols of these pretty little birds. Sometimes after a wet day, when the water would come roaring over the masses of stone in its course from the Rydal falls, in the most impetuous manner, there would be perhaps a pair of these birds popping in and out of the torrent, now lost in the black mass of water, or the white foam as it broke against a projecting rock; and now emerging and resting for a few seconds on a small point of stone; and with a shake apparently as dry in a moment, as if nothing had happened to moisten their feathers; their brilliantly white breasts shining in the highest relief amidst the surrounding deep gray stones, and deep brown stream. They appeared to have almost the powers of fish.

The Kingfisher has something of the same power, but in a very comparatively limited degree, for he merely remains for a few seconds at most under water. The most perfect exhibition of this power I ever witnessed, was some years ago, at the gardens of the Zoological Society, in the case of one of those singular birds called Darters, (*Plotus*?) It was necessary to capture him for some purpose, and as his wing was cut, this was supposed to be a matter of small difficulty; but those who thought so, grossly miscalculated, for upon the first attempt to take him, with unerring instinct he made his way to the water, wherein he was confident in strength. The pond was small and not deep, and yet for more than half-an-hour did he completely baffle the efforts of half-a-dozen men armed with poles, etc., and as many coadjutors, in chance boys, but too ready to assist. I suppose never was a more wonderful display of subaqueous powers; so great were they, that many of the spectators, who had not seen the commencement of the chase, were not in the least aware *what* was the object, until he was brought to land; unfairly caught even then, and apparently nothing daunted.

We can well understand how active exertions rightly made, may produce continued submersion and subaqueous motion; but that curious provision by which birds are enabled to swim just beneath the surface, can, I think, be explained in no other way than that advanced in the article I refer to; for in that way the bird has it perfectly in its power to *regulate* the amount of submergence according to circumstances, which in no other way, by no movement of the webbed feet or otherwise, could it do. But before I close these remarks, I may observe that such birds as are capable of this evolution are not the lightest birds nor the best flyers, except in the larger Divers and the Cormo-

rant tribe, which are all, if I mistake not, adepts in this way.

With animals, it is notorious that the Otter, (*Lutra vulgaris*,) when pursued, swims with his nose only above water, in exactly the same position as the birds which have been referred to; but in this case, I imagine his general powers of subaqueous motion are the sole agents engaged; indeed I have seen some of the Messrs. Kenworthy, the celebrated diving and swimming professors, at the Holborn Baths, do very much the same thing.

Lincolns-Inn-Fields, June 1st., 1852.

GLEANINGS FROM MY NOTE BOOK.—No 1.

BY J. MC'INTOSH, ESQ.

Birds' Eggs.—To preserve the colour of these, there are various ways: the best I have found is to wash them twice with isinglass dissolved in gin. The shining properties of the varnish soon disappear, leaving the egg quite natural in appearance.

Frozen Fish.—Sir R. Phillips says “at Coppermine River, fish are so frozen as to break with the blow of a hatchet, but if when thus frozen, they are thawed by the fire, they will revive.”

Swallows.—These birds do *perch* on the branches of trees. On June 29th., 1851, observed *twenty-five* perched on the branches of a walnut tree, and have frequently on former occasions observed the same thing.

House Martins.—These birds also perch on the branches of trees. I have frequently observed them in the evenings, about six o'clock, when hawking for flies, alight on the branches of oak and elm trees for some minutes, as if to rest themselves, yet they would frequently dart at a passing insect, and again return to their perch.

Moorhen.—It has been frequently doubted whether this bird perches in trees. We have frequently caught them in our hands, by the light of the moon, so perched, while they were “*napping*,” and are quite satisfied in our own minds that they roost in trees in places where they are not likely to be disturbed by prowling boys, foxes, etc. We have most frequently found them in spruce fir tree branches; but where these trees are not close to their haunts, they may be found perched in alder and willow stumps; we have also found their nests in willow stumps six feet from the ground.

Jackdaw's Egg.—May 28th., 1851, took a Jackdaw's egg of a dirty white, or rather light stone-colour, which is still in my possession, with two large blackish patches—one on each side. Is this a common or an uncommon occurrence with the eggs of this bird?

Hatching Fish.—Hatching eggs by artificial heat is well known and extensively practised in various countries, but I am not aware that the hatching

of fish by artificial heat is practised in any other country but China. Martyn, in his "China," says the fishermen collect with care, on the margin and surface of the water, all the gelatinous matter that contains spawn of fish, which is then placed in an egg-shell, which has been freshly emptied through a small hole, which is then stopped, and the shell is placed under a sitting fowl. In a few days the Chinese break the shell in warm water, warmed by the sun; the young fish are then placed in water, until they are large enough to be placed in a pond.

The Lapwing.—When this bird wants to procure food, it seeks a spot likely to abound with worms, and commences stamping the ground with its feet, slender as they are: the worms are alarmed at the sound, and endeavour to make their escape by coming to the surface, when they are immediately seized, and become the easy prey of their cunning enemy, the beautiful Lapwing.

Vitality of Fish.—Some fish die almost immediately they are taken out of the water, for instance Mackerel, and the Herring, while others, as the Eel, Plaice, Skate, Carp, and various other species, will live for many hours after being brought to land. Perch have been known to survive a journey of *sixty miles per coach*, not *per rail*, packed in straw; and Carp can be fattened when placed in damp moss in cellars, if occasionally dipped in water; so also the Turbut: others, again, suffer the most dreadful mutilations, as the Eel, the Shark, and the Dog-fish, without being speedily killed.

Merriott, near Ilminster, Somersetshire.

NOTES ILLUSTRATIVE OF THE GEOLOGY OF PART OF THE SHORES OF EAST LoTHIAN AND BERWICKSHIRE.

BY JAMES P. FRASER, ESQ.

Read before the Natural History Society of Glasgow, on April 6th., 1852.

ON the 26th. day of February I had the pleasure of accompanying my friends Messrs. Robert Gray and T. Ferguson on an excursion to Dunbar and its neighbourhood, when I seized the opportunity of making a few geological notes in addition to those I made on a former visit in July last. These I have much pleasure in laying before the Society; but as Mr. W. Ferguson has already written a paper upon the geology of part of this shore, which was read before the Philosophical Society last session, and printed in "The Naturalist," I will avoid what he has done, and take up what he had not time to examine.

In commencing, then, I will begin with general features, and descend afterwards to minute details. The surface of the country in this district is extremely diversified, though not mountainous. The principal rising grounds are the Lammermuir Hills, consisting chiefly of uptilted Silurian strata, upon

which the Old Red and Carboniferous rocks repose. The general inclination is from the foot of the Lammermuir range towards the north-east, but the descent is far from uniform. From the shores of the Frith of Forth the country consists of a series of parallel ridges, running from west to east, and successively increasing in altitude until they reach the Lammermuir Hills.

The Old Red Sandstone forms a considerable portion of the district, and generally rests upon Metamorphic rocks, and is covered by the Coal formation. It is of a brownish red colour, though occasionally of a yellowish or grayish white, gliding not unfrequently into a delicate bluish white, imparting, in some places, a variegated aspect to the shore. It alternates from very fine to very coarse granular, thus passing into the Conglomerate. The strata vary from a few inches to several feet in thickness, and are generally inclined to the horizon. The dip I have never seen to exceed 45° , and the usual direction is from north-east to south-west. The Lammermuir range, as I have already said, is composed principally of Greywacke, or Silurian rocks, and the position of the strata is nearly vertical.

The harbour of Dunbar is situated in a red-coloured Trap rock, which forms a large promontory. To the south-east of the harbour the coast is low and sandy, consisting of Old Red Conglomerated Sandstone, Trap-tufa, and Greenstone rock. The lower strata of the Sandstone are calcareous, containing in the upper beds the impressions of vegetables, and in the lower the remains of *Encrinites*, *Producti*, *Terebratulæ*, etc. To the north-west of the harbour the coast is more elevated and rugged, consisting of lofty cliffs of red-coloured Trap-tufa, which are succeeded by others of red and white Sandstone. From Belhaven Bay to North Berwick, the coast is low and sandy, with the exception of the small promontory of Whitberry Head and Ravensheugh Craig. Dr. Macknight has described it as follows:—"It is a Trap formation, apparently overlying, but in reality subordinate to, the Old Red Sandstone, and consists of Basalt with crystals of Hornblende, red and green Trap-tufa impregnated with Lime, beautiful Clinkstone, and Porphyry Slate." This description is that of a true Wernerian, and is not in accordance with the views now entertained. It appears really to have been a submarine volcano, the contents of which have burst through the Sandstones, and overflowed them. Many beautiful examples of this are to be seen along the whole extent of coast already noticed, and the Sandstones may be observed to be quite metamorphosed, having been indurated by the excessive heat of the liquid rock, and present the appearance at first sight of compact Felspar.* About a mile north-west of Whitberry is the elevated rock called Ravensheugh Craig, consisting principally of Greenstone and Basalt, with crystals of Horn-

* It must be observed and borne in mind that the whole of the headland which forms the southern shore of the Frith of Forth is Trap, covered here and there, upon the coast, with small patches of Old Red Sandstone and Carboniferous rocks, principally, however, the latter. These, I have no doubt, were raised from the point of their deposition by the Trap, and originally covered it, but by denudation have now nearly disappeared; but this will be entered into more fully at the close of this paper.

blende. To the north the coast again becomes elevated, and near Tantallan Castle the cliffs are particularly rugged, and rise to the height of a hundred feet.

And now to be a little more particular. On the forenoon of the 27th., our little party wandered leisurely along the coast towards Belhaven; but as this has all been described in Mr. Ferguson's admirable paper, I will pass on to our afternoon's ramble, eastward along the shore, to the Cateraig. On our road we passed over and admired many interesting geological phenomena,—the thin sharp edges of the Old Red, having the appearance, as Mr. Ferguson graphically describes it, of "the ridges of a ploughed field on a gigantic scale," so regularly are they laid out. Suddenly we find this regularity close: the gently-sloping edges are raised to the vertical position, then they are reversed, and here we find them reclining on a great dyke of Greenstone; we find this succeeded by the ancient forest and the ripple-mark, and then the Shale with its *Encrinites*.* We now walk over a fine expanse of sand, and arrive at the Cateraig. The rock here is Limestone, and it is characterized by the immense abundance of Corals which it contains—indeed it appears to have been one great reef; the colour is a bluish gray; it is very compact, and highly crystalline, and its thickness seems to be considerable. I may mention that here the strata are quite horizontal. The Corals of this bed are *Madreporites*, and imbedded with them are some *Terebratulæ*, and in the Shales around, which form the lower beds of this Limestone, the larger *Producti* are so abundant as almost entirely to form these lower layers of the Limestone beds. They uniformly rest with the convex side of the valve downwards, thereby indicating the tranquil condition of the bed of the sea where they lived and died.

On the morning of the 28th., the party proceeded by rail to Cockburnspath, which stands upon the borders of the counties of East Lothian and Berwickshire, and walked from that to Siccar Point, along the headlands. The road is wild and varied: the path overhangs the sea, which it commands beautifully, yet fearfully, to a great extent. It is a silent, sublime, and sea-beat scene, where the German Ocean rolls its strength on the rocky precipices; and to enjoy the wild sublimity of the landscape, we often stood awhile and listened calmly to the fierce music of the waves which beat against the rugged base, and were then lashed into the whitest foam, as if enraged at their own impotent fury. The noonday light of a cold, clear February day was full on the rocks, bringing out in bold relief their varied lights and shades, the old ruined church of St. Helen's, hoary with age, and the modern homes: no cry of the mariner, no voices from the crowded mart, or from the chambers of luxury, came over the waters.

Having reached Siccar Point, we descended the precipice by a road, to a giddy head, not very safe, cut out by the proprietor Sir James Hall, for the convenience of visitors. Having arrived at the bottom, we entered the

* For a beautiful and correct description of the strata in the immediate neighbourhood of Dunbar, see Mr. W. Ferguson's monograph in "The Naturalist," vol. i., page 97.

cave, into which the roar of the waves came with a hollow and sepulchral voice, and the sea-birds swept shrieking around its mouth. This cave is in the Clay-slate and Schists of the Lammermuirs, where they are undermined by the sea. In the interior the Slates are traversed by innumerable and very beautiful Quartz veins; and we were sorry that from the want of instruments sufficiently heavy, we could not procure specimens so fine as we desired. In looking out to sea we observed that the entrance of the cave is characterized by a gorge of the same width with itself, but apparently of great depth, up which the sea came rolling and tossing, as if anxious to lick the sides of the interior, and jealous of its privacy being broken in upon by any intruder; and by its fury it was here dashed into a foam rivalling the snow in purity, and so thick that a small wand might almost have stood erect in it. It was a scene which every true lover of nature must have admired and enjoyed. This cave is a famous breeding-place of the Rock Pigeon, (*Columba livia*;) and the roof was almost as full of last year's nests as of *Stalactites*.

In coming out of the cave, we observed that the Old Red Sandstone lay unconformably to the Clay-slate; indeed the object of our first visit was for the purpose of studying and examining this phenomenon. Strata are said to be unconformable, when one series is so placed over another, that the planes of the superior repose on the edges of the inferior. In this case it is evident that a period had elapsed between the production of the two sets of strata, and that during this interval the older series had been tilted and disturbed. Afterwards the upper series was thrown down in horizontal strata upon it. If these superior beds are also inclined, as they are very considerably, it is plain that the lower strata have been twice displaced; first before the deposition of the newer beds, and a second time when these same strata were thrown out of the horizontal position.



a. a.—Twisted strata of the Silurian Schists.

b. b. b.—Unconformable strata of Old Red Sandstone at Siccar Point.

Playfair has remarked that this kind of junction, which we now call unconformable, had been described before the time of Hutton, but that he was the first geologist who appreciated its importance, as illustrating the high antiquity and great revolutions of the globe. He had observed that where such contacts occur, the lowest beds of the newer series very generally consist of a breccia or conglomerate, consisting of angular and rounded fragments, derived from the breaking up of the more ancient rocks. "On one occasion,"

says Lyell, "the Scotch Geologist took his two distinguished pupils, Playfair and Sir James Hall, to the cliffs on the east coast of Scotland, near the village of Eyemouth, not far from St. Abb's Head, where the Schists of the Lammermuir range are undermined and dissected by the sea. Here the curved and vertical strata, which are of Silurian age, and which often exhibit a ripple-marked surface, are well exposed at the headland called Siccar Point, penetrating with their edges into the incumbent beds of slightly inclined Sandstone, in which large pieces of the Schist, some round and others angular, are united by an arenaceous cement. 'What clearer evidence,' exclaims Playfair, 'could we have had of the different formations of these rocks, and of the long interval which separated their formation, had we actually seen them emerging from the bosom of the deep? We felt ourselves necessarily carried back to the time when the Schist on which we stood was yet at the bottom of the sea, and when the Sandstone before us was only beginning to be deposited in the shape of sand or mud, from the waters of a superincumbent ocean. An epoch still more remote presented itself when even the most ancient of these rocks, instead of standing upright in vertical beds, lay in horizontal planes at the bottom of the sea, and was not yet disturbed by that immeasurable force which has burst asunder the solid pavement of the globe. Revolutions still more remote appeared in the distance of this extraordinary perspective. The mind seemed to grow giddy by looking so far into the abyss of time; and while we listened with earnestness and admiration to the philosopher who was now unfolding to us the order and series of these wonderful events, we became sensible how much farther reason may sometimes go than imagination can venture to follow.'"²

(To be continued.)

AN INQUIRY AS TO A SPECIES OF FLY.

BY J. C. DALE, ESQ.

I SEND you extracts out of Ray and Moufet, and also from a letter from the son of Dr. Paris to Mr. Curtis. I showed it to Mr. Haliday, and spoke of it to Mr. Spence; neither could make it out, and wished me to go to Hinkleshaugh myself and try to get a specimen. I will give Mr. Paris's *first*.—"I also wanted to ask you the name of an insect which bothered me occasionally when I wanted to be quiet and enjoy a fine view, but unfortunately I neglected to procure a specimen, and unless you happen to have visited the spots they haunt, my description will not be sufficient. On the summits of the Dartmoor tors, not only on the highest rock, I was always assailed by a multitude of flies, bearing a *resemblance to the bee*, (but not what we used at school to call "darting flies,") which came by two or three, increasing in number every moment, flying and buzzing in my face, until I was forced to

* The reader is referred to the frontispiece of the last edition of Lyell's "Elements of Geology," for a view and explanation of this interesting spot.

a precipitate retreat. When they settled on the rock they began a very harmonious piping, to which I could willingly have listened had the rest of the band desisted from their persecution. I defy any person to stand quiet for five minutes on the top of one of these tors. If you have visited Dartmoor I am sure you must have noticed them."

From Ray, page 273.—"*Musca Apiformis montana*, corpore brevior, thorace nigro, abdomine annulis nigris et rubris alternis vario. Ape vulgari mellifica paulò brevior est, thorace nigro, abdomine annulis nigris et rubris alternis composito. Alæ cinereæ transversa linea nigra prope imam partem notatæ. In monte præalto *Hinckelhaugh* dicto prope *Settle Comitatus* Eboracensis oppidulum, inveni. Valdè importuna erat et molesta circa montis cacumen. Aculeum non habet, verum *forcipes* ad caudam iis quæ in erucarum ore similes."

From Moufet, page 61, with a figure as "*Asilus apiarius*. Alter *Tabanus* sive *Asilus*, nascitur in extremis partibus favorum, amplioris magnitudinis quam sunt apes cæteræ; et quoniam exagitat, nec patitur examina, conquiescere, (ut ne prædictus *Oestrus armenta*) oistron Græci vocarent. Caput huic muscæ spadicei coloris est, linea alba à fronte usque ad occiput intercurrente, scapulis, et dorso subfuscis; reliquis omnibus a vulgarium muscarum forma non differt, haud florum duntaxat succo, et melle vescitur, sed etiam animalium sanguine, quemdiu violentius exugit, acriter mordet."

♂ TABANI feed on flowers.	} Can any of your correspondents suggest
♀ Do. feed on blood.	

The first part of Ray seems to agree with a *Tabanus*, but the latter part with the *Asilus* of the moderns, and yet the account agrees better with the former, and still less with *Oestrus* or *Sericomyia*.

Glanvilles Wootton, May 4th., 1852.

ON THE DIFFERENCES BETWEEN PIERIS, (PONTIA,) BRASSICÆ AND P. CHARICLEA—THE LARGE CABBAGE WHITE BUTTERFLIES.

BY BOMBYX ATLAS.

IN common, I believe, with several other entomologists, I have for many years had my doubts as to whether *Pieris Chariclea* was a variety of *Pieris Brassicæ*, or whether it was a distinct species. The great similarity in the perfect insect and the non-recordance of any distinction in the caterpillars led to the conclusion that *Pieris Chariclea* was an accidental variety of *Pieris Brassicæ*. The difference in size and appearance of the two insects, and the constancy of these differences led to a quite opposite opinion. The only real way of coming to a decision, which admitted of no doubt, was to obtain the caterpillar and carefully watch its growth and development, and compare it with that of *Pieris Brassicæ*—more easily said than done, I grant you—for I have

searched for many years, and passed as many *Brassicæ* through my fingers as would reach almost from my residence to yours, still I detected no difference otherwise than usual.

It so happened that last autumn I stumbled upon what I thought at first sight was a little cluster of eggs of *Pieris Brassicæ*; but it struck me it was not quite the thing, and I brought them home and compared them; there was a great resemblance, still I was not satisfied. In course of time my eggs were hatched, and every one went into a state of chrysalis. The caterpillars differed widely from *Pieris Brassicæ*, the chrysalis also. The perfect insect, every one was *Chariclea*, and the time of appearance was different. Thus the egg, caterpillar, chrysalis, time of appearance, and perfect insect being different; it follows "de necessitate," the two species must be distinct, and *Pieris Chariclea* is no more a variety of *Pieris Brassicæ* than *Pieris Brassicæ* is of *Pieris Chariclea*.

I am not going to describe the difference between the two perfect insects. That is already very fairly done by J. O. Westwood, Esq., in his work entitled "British Butterflies," published in 1841, in which he quotes from "Albin." Not possessing, nor ever having had the good fortune to meet with "Albin's" work on Entomology, I can form no opinion as to the accuracy of his colouring the caterpillar. It is clear, however, that "Albin" himself was aware of the difference between *Brassicæ* and *Chariclea*.

I readily admit that to an unpractised Entomologist so great is the general resemblance of the two caterpillars, that they are probably often passed over or mistaken one for the other. I am almost certain I have formerly repeatedly done so myself; and I dare say others have done the same. I send you a little synoptical table in which I have, without attempting to occupy your time or space too much, given you the precise points in which these two caterpillars differ, neither more or less; in all other respects then please to observe the two caterpillars present the same appearance.

I cannot help thinking that *Pieris Chariclea* is a much less common insect than *Pieris Brassicæ*, but it would occupy too much of your space to give my reasons for so thinking, and also I believe that many Entomologists have placed in their collections an accidental variety of *Pieris Brassicæ* for *Pieris Chariclea*. I know I have formerly done so myself, but now I have not the slightest shade of hesitation in pronouncing *Pieris Chariclea* to be a perfectly distinct species from *Pieris Brassicæ*.

I trust this may interest some of your readers, and lead them to follow up this and similar cases, and I hope to see the results of their observations in your Journal.

POINTS OF DIFFERENCE OF CATERPILLARS.

P. Brassicæ.

Ground colour.—Pale grayish sea-green, or pale grayish yellow.

Abdomen.—Dull yellowish green, with a rather darker ventral line.

P. Chariclea.

Ground colour.—Pale greenish yellow, (invariably.)

Abdomen.—Dull lemon-colour, with a rather lighter ventral line.

P. Brassicæ.

Head.—Light bluish gray or green, finely speckled with black, and with a small triangular patch of very light flesh-colour in the centre, broadly bordered by black, and a small round black spot on either side.

Mandibles.—Pale bluish gray, tipped with black.

Thoracic Legs.—Yellowish, faintly spotted with light brown.

Growth.—Grows to about two inches.

Eggs.—Generally in clusters of fifty to sixty, of a pale lemon-colour.

Earliest time of appearance.—Generally about the 24th. of April. Seldom earlier than that period.

Tottenham, April 28th., 1852.

We shall be very glad if some of our other Entomological friends will follow out the experiments commenced so ably by Bombyx Atlas. It is the only way to arrive at the truth. We have ourselves hitherto always considered *P. Chariclea* to be only a variety of *P. Brassicæ*; but the above facts certainly will induce us to re-consider our opinion.—*B. R. M.*

P. Chariclea.

Head.—Light bluish green, (*invariably*), finely speckled with black, and with a small triangular patch of *bright yellow*, broadly bordered by black.

Mandibles.—Pale bluish gray.

Thoracic Legs.—Yellowish, bordered and tipped with dark brown.

Growth.—None exceed an *inch and a half*.

Eggs.—Generally in clusters of *twenty to thirty*, of a *deep lemon-colour*, altogether smaller than those of *P. Brassicæ*.

Chrysalis.—Much smaller, of a much *paler green* than, and *not so much spotted* as that of *P. Brassicæ*.

Food.—Similar to that of *P. Brassicæ*.

Earliest time of appearance.—Generally from about the 30th. of March to the 24th. of April. *Seldom later* than that period.

Miscellaneous Notices.

Curious anecdote of a Spaniel and young Ducks.—In the early part of last spring I called on a cottager, a poor neighbour, who I heard was ill. I found him sitting by his fire with a Spaniel and her puppy, six weeks or two months old, and a Cat and a half-grown kitten. The dog got up to greet me, for we are old acquaintances and good friends, when from under her ran seven young Ducks, a few days old. The woman of the house told me that they had been hatched under a hen, which would not take care of them; and that she had brought them into the house to keep them warm. The Spaniel immediately took to them, and whenever she came in and lay down by the fire, the Ducks ran to her and nestled among her long hair. I asked her how the *Cat* agreed with them, to which she replied that *Busy*, (such is the Spaniel's name,) would not suffer anything to come near them; and I had proof of this, for her own puppy went up close to one of them as though to play with it, when she snapped at him and drove him away. One of the Ducks soon died, having, apparently, something wrong in its head; but the other six thrived under *Busy's* care, and are now fine Ducks, fit for table. The woman added that she was remarkably fond of little young things, and would nestle a brood of young chickens like a hen.—*E. M., Coundon, Coventry, July 2nd., 1852.*

Mouse Diving.—The River Severn has lately much overflowed its banks, to the great destruction of the Moles, Mice, and Weasels, which in some numbers infested the banks and flat meadows. I was walking along the edge of the water a day or two since, when a Dog I had with me started out of a tuft of grass a little Mouse, which, much to my surprise, immediately took the water; to be sure he was rather sorely pressed, and had no other means of escape. The Dog sprang in after him, and, just as he was on the point of catching him, the Mouse, to my

still greater astonishment, dived, and I saw him no more. I think that it was the Short-tailed Field Mouse, but the whole affair was done so quickly that I had not opportunity to ascertain.—MARTIN CURTLER, Bevers House, Worcester, February 10th., 1852.

Kestrel Falcon attacking Missel Thrush.—Some few weeks ago a friend of mine was standing within a few yards of a large Portugal laurel tree near this house, when he was startled at the noise made by a bird darting rapidly through the thick leaves and branches, and almost before he had time to look up, down from the tree, and within a very short distance of my friend's feet, fell a Kestrel and a Missel Thrush, firmly locked in deadly struggle, both making a most tremendous uproar. They rolled over and over several times, until the Kestrel appeared to have the best of the encounter, and managed to take wing, still holding the Thrush quite tightly; he was, however, only able to fly a few yards, when down both came again, and the struggle was renewed upon the ground. The same thing was repeated two or three times, the Hawk managing to fly with his victim about the same distance each time, until at last he contrived to take him over a high hedge into a plantation, and was lost to view. There was not the least doubt, my friend assures me, as to the Hawk being a Kestrel: probably he was hard pressed for food, or he would not have attacked so formidable a bird as the Missel Thrush. I believe that the Kestrel very seldom preys upon birds of any kind, but that its food consists almost entirely of Mice. Let any one climb a tree and inspect this bird's nest; he will there probably see some scores of disgorged pellets, composed of fur, all around the nest, which he will find on examination are the remains of Mice. I have myself seen in and under one nest, when the young birds were only about a week old, from one hundred and fifty to two hundred of these Mice pellets, and not a vestige of a feather, or sign of any kind of bird to be seen.—Idem.

Irides of the Sparrow-Hawk, (Accipiter fringillarius.)—A short time ago a fine specimen of this bird, a male, was shot near here, and came into the possession of a bird-stuffer in this city, having its irides of a deep red colour, instead of the ordinary bright yellow. This singularity, I must observe, was not caused by any injury the bird had received; for on skinning it, not a shot-corn was found to have penetrated the head.—F. M. BURTON, Lindum House, Lincoln, March 3rd., 1852.

European Hoopoe, (Upupa Epops.)—A pair of these rare and elegant birds were shot in the parish of St. Stephen's, near St. Austell, Cornwall. I am informed by Mr. Percy, bird and animal preserver of this town, that the female was shot on the 26th of March, and the male on the 30th. They were in very good plumage.—W. E. MATTHEWS, 4, Portland Square, Plymouth, April 16th., 1852.

The Hoopoe, (Upupa Epops.)—A very beautiful specimen of that rare and singular bird, the Hoopoe, was shot at Earsham, near Bungay, Suffolk, a few days since. It is almost thirty years since one was shot on Bungay Common.—E. C. NUNN, Anandeston, May 1st., 1852.

Appearance of the Hoopoe.—About the middle of last April, two Hoopoes were seen on the Island of Skomar, Pembrokeshire, by a friend of mine, who shot one of them: about the same time one or two others were seen in the neighbourhood.—E. R. B., May 26th., 1852.

A good specimen of the Hoopoe, (*Upupa Epops.*) was captured by a labouring man on the 8th. of May last, in the parish of Sparkford, Somerset. It was kept alive by the man for three weeks, during which time he fed it on worms and such like.—C. DEW, Yeovil, Somerset, June, 11th. 1852.

Note on the Woodcock, (Scolopax rusticola.)—On the 16th. of June, 1851, a fine adult Woodcock was shot in Mr. Paull's nursery. It was discovered by a gentleman, sitting on some weeds in the middle of a brook, about ten yards distant from the turnpike road.—R. H. NANCARROW, Grampound, March 12th., 1852.

Ortolan, (Emberiza hortulana.)—The Ortolan mentioned at page 131, when killed, was busily seeking food in the grass and low herbage, on the bank by the road side; and, on dissection, its crop was found to be almost full of the remains of small beetles.—W. F. W. B.

Kingfisher's Nest.—A few weeks since I found a Kingfisher's nest with five young, I should think about three days old. The nest was composed of loose fish bones, lined with red cow-hair; this is a circumstance I have never before witnessed or heard of, the object I suppose was

to protect the tender skins of the young from the points of the fish-bones. The hair was not there when there were eggs. I have never found a nest with the bones cemented together.—CHARLES DEW, Yeovil, June, 1852.

Common House Sparrow, (*Passer domesticus*).—Some years ago my curiosity was excited, during the month of March, by the manner in which the Common House Sparrow every evening assembled in numbers under the eaves of an old thatched building, and twitched out the straws from the roof. This led me to examine minutely their operations, and on placing myself in a convenient situation to obtain a better view, I perceived their object was to get the insects that were secreted in the thatch. I pulled out several straws, and found many little insects adhering to them.—E. C. NUNN, Diss, Norfolk, December 22nd., 1851.

Late nesting of the Ring-dove, (*Columba palumbus*).—I discovered a nest containing two half-fledged birds, in Trevan wood, about a mile from this place, September 25th., 1851.—Idem.

Late appearance of the House Martin, (*Hirundo urbica*).—I saw a single House Martin here on the 18th. of November, 1850. It continued flying over the neighbourhood for about two hours, and then disappeared. The weather for some time previous had been wet and cold, but on the day in question it was comparatively warm.—Idem.

Note on the Hedge Accentor, (*Accentor modularis*).—Twice last summer I heard the Hedge Accentor singing during the night; once at eleven o'clock, and some weeks after at midnight. The moon was shining brightly on both occasions. Query—Is this of common occurrence, or is it not probable that the bird mistook the moonlight for the light of morning?—Idem.

Early nesting of the Blue Tit, (*Parus cæruleus*).—A person in the employ of Mr. Paull, brought me an egg taken from the nest of the Blue Tit, on the 16th. of January last. It was considerably smaller than the eggs of the same species taken last summer, and the substance of the yolk appeared to be partially congealed. Perhaps this may be attributed to the coldness of the weather.—Idem.

A neighbour of mine has a Duck which, last spring, laid *black eggs*, or rather, eggs of a dark brown colour. The first two or three, I was credibly informed, were almost black; after that they gradually became lighter, till they assumed the general colour. Unfortunately I did not hear of it in time to procure one of the first eggs; but a portion of the shell of one of the lighter ones was brought to me. It was covered all over with small brown spots.—Idem.

Variety of the Common Pheasant, (*Phasianus Colchicus*), at *Woburn, Beds.*—I have by me a very light cream-coloured Pheasant, which was shot in the evergreens, Woburn Park, towards the close of the last shooting season, and since presented to me; it is as regularly marked as another bird: the tail feathers are rather darker than the other parts of the body. It is three years old, and was well known—when the sun shone on it the feathers had a silvery appearance. There is also at the present time a pair of Pheasants, the plumage of which is pure white, in the Pheasantry of Mr. Curtis, at Bow Brickhill, Bucks., about three miles from here, which were bred there from pied birds which they have shut up with other tame Pheasants.—G. B. CLARKE, Woburn, Beds., March 13th., 1852.

Wild Swan, (*Cygnus ferus*).—As I was walking in Woburn Park, on the 9th. of February, I saw a Wild Swan in a piece of water called the Basin, in front of the Abbey, which had been there for about a week previously. It had not long settled there when two tame Swans which were there came sailing up, and began to chase it round and round, until they at last drove it out of the water, when it flew off to another piece of water called Great Drackelow, where it met with the same reception as it had done at the Basin; the tame Swans no sooner seeing it settle in the water, than they began to chase it as the others did before. I was surprised to see it stay here so long as it did—namely, about a fortnight.—Idem.

The Swallow, (*Hirundo rustica*).—Three were seen by me on the 13th. of April.—J. W. LUKIS, Heacham Hall, Norfolk, April 29th., 1852.

NOTICES OF THE ARRIVAL OF THE

HIRUNDINES, ETC., DURING THE PRESENT SPRING, AT MINEHEAD, SOMERSET.—BY CAPTAIN GIFFORD.*

On the 3rd. April, at six, p. m., saw a bird fly by me to the eastward, which I am positive was a Sand Martin, (*Hirundo riparia*), and on Thursday, the 8th., I saw three more fly

* See Naturalist, vol. 1., page 90.

over the top of my house in the same direction, about eleven, a. m. On the 12th., (Easter Monday,) saw a Swallow, (*Hirundo rustica*,) cross the "Water Lane" several times, and as I proceeded on my walk over the Warren, I saw three or four Swallows and many Sand Martins. Wednesday, 21st.—Heard a Cuckoo, (*Cuculus canorus*,) and saw a Fieldfare, (*Turdus pilaris*,) which I thought very late in the season for this winter visitor to remain here. 25th.—heard the Nightingale, (*Philomela luscini*.) 29th.—Saw several Martins, (*Hirundo urbea*.) May 8th.—Saw two Swifts, (*Cypselus apus*,) flying over my house at eight, a. m.

The Misseltoe.—Among the trees on which the Misseltoe has been found, (vol. i., page 156,) I do not observe the Sycamore. In and near Cheltenham, many plants of it may be seen on that tree; there are also in that town Mountain Ashes with Misseltoe on them; and at a country house a few miles off, some fine plants of it on Acacias; both which cases are mentioned in your catalogue, but not specified. At Cheltenham and elsewhere, it may be seen abundantly on Apple trees mixed with Pear trees, not a single plant ever appearing on a Pear tree, which is strange, as it grows on the Hawthorn, Mountain Ash, and White Beam, which will all take grafts of the Pear.—R. D., Dublin, June 19th., 1852.

Proceedings of Societies.

Natural History Society of Glasgow.—The ordinary meeting of this Society was held on Tuesday, April 6th., 1852.—WILLIAM GOURLIE, Esq., President, in the chair—when there was a full attendance of members. Mr. James Duncan was admitted a resident member, and Mr. Charles W. Peach, Peterhead, a corresponding member.

MR. GOURLIE exhibited a specimen of *Unio Mississipensis*, Lea, sent by Joseph Clark, Esq., to Dr. Lorrain; also a specimen of *Codium Bursa*, a rare sea-weed found near Brighton, and sent by Dr. Landsborough, of Saltcoats.

MR. THOMAS FERGUSON exhibited specimens of *Nephrops Norvegicus* and *Lithodus Maia*, and stated that they are both somewhat interesting species of British Crustacea, especially the latter, as being one almost peculiar to our Scottish seas. He procured this specimen from Largs, almost the only locality as yet recorded on the West of Scotland. Major Martin includes it in his list of Clyde Crustacea. He stated he was indebted to his friend, Mr. Robert Gray, for the following notes of its occurrence at Dunbar:—It approaches the shore there early in spring in considerable numbers; and is indeed during the entire winter pretty frequently met with. Being totally useless as a marketable commodity, however, it was some time ere he could prevail upon the fishermen to bring ashore any specimens which they got; and though perfectly well known to those employed in the crab fishery, it was always counted a curiosity when exhibited in the market, as it seldom happened that its captors took the trouble to remove it from their hooks when caught, otherwise than by tossing it back into the sea. Mr. Gray, however, to ascertain its numbers, offered a reward for every specimen that was brought to him; and the very first day afterwards he was obliged to refuse many. This was in February, March, April, and May of 1846; and the specimens were brought from deep water about ten miles off shore. They were caught on the fishing-lines, not in crab-cages. It sometimes comes so near the shore, that at low tides it is found wedged in crevices of rocks and in deep pools, lying concealed under the leaves of *Fuci*, in company with the common edible crab, (*Cancer pagurus*.) At Dunbar, during the months mentioned, this crab becomes still more common close to the shore, but for what purpose is not well known. It would hardly appear to be their object to deposit spawn, as almost all, indeed all but one of the specimens procured by Mr. Gray, were males.

The specimen of *Nephrops Norvegicus* which was exhibited was unusually large, being sixteen inches from the extremity of the tail to the tips of the claws. This species is abundant on the Dunbar shore, and falls a sacrifice to the voracious appetites of the cod-fish in enormous quantities. It does not appear farther south than Berwick-upon-Tweed. This specimen was brought from the Ayrshire coast, and is also enumerated by Major Martin in his list. There is an excellent figure of it in "Pennant's British Zoology," vol. 4th.

MR. JAMES P. FRASER exhibited a specimen of a new encrinite, which had been sent him by

his friend, Edward Wood, Esq., of Richmond, Yorkshire. He mentioned it had been found by that gentleman in the mountain limestone of that district. The species is absolutely new to that formation, and most likely new to science, as he believed it to be yet undescribed. This species is distinguished by its relatively narrow joints, as compared with their length; and he took notice that the column decreases in diameter towards the base, instead of increasing, which is quite a new character in encrinites. He mentioned that Mr. Charlesworth thinks it belongs to the genus *Cyathocrinus*, but so far as he had opportunities of studying its structure and comparing it with other species of that genus, he felt inclined rather to place it in a genus between *Cyathocrinus* and *Platycrinus*. It comes very near the latter in many points.

A letter by DR. MORRIS, of York, was read, relating to the occurrence off the Yorkshire coast of a new *Priapulus*, a creature allied to the *Sipunculidæ*—a description of it will be seen in the proceedings of the Yorkshire Naturalists' Club.

The following remarks upon *Hippothoa divaricata*, by DR. LANDBOROUGH, were read by the SECRETARY:—The specimen of *Hippothoa divaricata* which accompanies this is from Mrs. Gatty, wife of the Rev. Mr. Gatty, Vicar of Ecclesfield, near Sheffield. The shell to which it adheres is from Sidmouth. Mrs. Gatty has the honour of making the discovery that it has capsules; in consequence of which it must be separated from the family of the *Eucratiadæ*, one characteristic of which is that "they have no external ovarian capsules." The one polypidium is so minute that she had great difficulty in making many of the naturalists see them. But they have now been seen and acknowledged by Dr. Johnston, Dr. Greville, and M. Bosk, who is writing on zoophytes.

The following papers were then read:—

1.—"Notes illustrative of the Geology of part of the Shores of East Lothian and Berwickshire,"—illustrated with a number of diagrams and sections—by MR. JAMES P. FRASER.

2nd.—"On the habits of the Ice Duck, (*Harelda glacialis*.)"—illustrated with specimens and drawings—by HENRY D. GRAHAM, Esq., Iona; communicated by ROBERT GRAY, Esq.

Business being concluded, the Society adjourned till the first Tuesday in May.

Entomological Society.--At a fully-attended meeting of this Society, No. 17, Old-Bond-Street, on the 7th. of June, 1852, J. O. WESTWOOD, Esq., F. L. S., President, in the chair, several papers were read, among which was one on the *Megacephale* of the Amazonian region, with details of some of their larvæ, by MR. BATES, and another of considerable interest by the PRESIDENT on certain Lamellicorn beetles, accompanied by drawings; also a note on the larvæ of *Sericoris Antiquana*, which inhabits the roots of *Stachys arvensis*.

Those questions of public interest--viz., the destruction of *Blatta Orientalis* in houses, and of the larvæ which attack the corks of wine-bottles, were again mooted, and as the attention of entomologists is now so actively turned to these subjects, it may be hoped we shall soon see a remedy for them, especially the former, which is by far the most annoying.

A novel mode of catching lepidoptera in Canada West was mentioned: it consists in smearing the tress with soapsuds, which have become putrid by exposure to the sun. It is said to be very attractive to the moths, although a trial of it in this country was without effect, probably from putridity not being sufficiently advanced in our temperature.

Many interesting British specimens of lepidoptera were exhibited, several of great rarity. A specimen of the genus *Morpho*, from New Granada, was on the table, said to be the finest in Europe.

The Querist.

I am afraid that chronology is not one of the "ologies" which Mr. R. A. Julian so industriously studies. I last year had to ask him for the date of an interesting excursion to Wicken-fen, which he thereupon furnished, but now again, in the last number, in an account of another excursion thither, though he has given the hour of the day, he has omitted the day of the month.—F. O. MORRIS, Nafferton Vearage, Driffield, July 1st., 1852.

Will double flowers, which through deficiency of culture have deteriorated into single ones, again resume the double form if better "management" be supplied to them?—Idem.





HONEY BUZZARD.

HONEY BUZZARD, (*PERNIS APIVORUS*.)

THE unusually marked Honey Buzzard, of which we present our readers with a faithfully-coloured, and carefully-executed figure, was shot in the neighbourhood of Bridlington, Yorkshire, and was taken in the flesh to Mr. Jones, a bird-stuffer of that town, about the end of May, 1850. It was from him purchased by T. Allis, Esq., of Osbaldwick; but being in a very bad condition, was sent by him to be re-stuffed by Mr. Graham, of York; who, with his usual taste and skill, made a splendid specimen of it. To Mr. Graham we are indebted for permission to copy the admirable painting of the bird made for him by Miss Barker, the same young lady who so kindly executed the drawing of the New Bustard, from which our plate in a recent number was copied. The life-like attitude of the bird, so ably imitated by Mr. Graham, has been admirably preserved in Miss Barker's drawing; and cannot fail, we think, to be satisfactory to such of our readers as are familiar with the natural positions of birds, which are always graceful and pleasing.

By giving an accurately-coloured figure of the bird, we avoid the necessity of a lengthened description. It is sufficient for us to remark that it differs from the ordinary appearance of the Honey Buzzard in having the neck and breast almost entirely of a pure white, instead of a rufous colour; having but a few dark blotches towards the vent; the head and nape of the neck are also of a bluish slate-colour: but it is possible that this may be the effect of age. The eyes in the young of the Honey Buzzard are hazel, and yellow in the adult. In this specimen the eyes were of a bright yellow colour, leading to the supposition that it was an old bird. The sex was not ascertained, but from its size it was probably an adult female. The back and tail were of the usual colour.—*B. R. M.*

CAN TOADS EXIST FOR AN INDEFINITE PERIOD DEPRIVED OF FOOD AND AIR?

BY R. MAYSMOR, ESQ.

IN the January number of "The Naturalist," Mr. Faulkner relates an account of a Toad having been found in a strange situation, namely, in the middle of a stone; and from this recent circumstance draws attention to such rare phenomena, and thereby brings this disputed point before the readers of "The Naturalist" for consideration. That Toads have been found in most unlooked-for situations there can be no doubt; but naturalists can never be brought to believe that they have been found alive in such extraordinary places as parties fond of the marvellous have occasionally stated and insisted on; and which statements have found credence among many unphilosophical persons, who are only accustomed to look upon the surface of things; they are ever inclined to render uncommon appearances still more marvellous, and are therefore not to be trusted. It may be said that these unaccountable stories are

as universally known and credited as the existence of Toads themselves, by the unthinking portion of mankind in this country; and even many respectable people, who have not given much attention to Natural History, more than half-believe them.

The Natural History of the Toad is in itself one of the most interesting subjects possible, without investing it with any fabulous interest. The following brief facts, though true, are far more strange than fiction:—Frogs and Toads are peculiarly interesting, from the remarkable changes in their development; the faculty of enduring long abstinence, their hybernation, and the age to which they attain. They come from the egg in a condition which is in all essential particulars, that of a fish, and undergo a gradual series of changes by which their form and structure become analogous to those of the true reptiles. In their tadpole or fish state, they are vegetable feeders, having a tail, by which they swim through the water, but no appearance of limbs or members; they breathe by means of gills, which are long fringes hanging loosely in the water on either side of the head: these, which are merely temporary, disappear at a later period, and respiration is carried on by another set, situated behind the head, and which are covered in by a fold of skin, the water gaining access to them by passing through the mouth, as in fishes. In a short time, the hind legs begin to sprout forth at the base of the tail; at a later period the fore legs begin to be developed, and the tail gradually disappears. During this time the lungs are being developed, and the gills are falling into general disuse; and the animals become fitted to live on land and breathe air; not now vegetarians, but feeding on insects, annelides, and small mollusks; water alone being no longer able to afford sufficient air for their respiration.

The wonderful tales of the discovery of Toads in the hearts of trees, in the inside of stones, and in the middle of rocks, have been related to shew partly that they had been in such positions for years unknown, deprived of air and food; and doubtless the situations, from a superficial view, might lead to this belief; but from a series of experiments made by Dr. Buckland, and recorded by him in the fifth volume of the "Zoological Journal," (to make known which to the readers of "The Naturalist," is the principal object of this contribution;) he concluded that Toads cannot live a year excluded totally from atmospheric air, and that having an occasional supply of air they probably cannot survive two years entirely excluded from food. A supply of oxygen is necessary to the performance of the functions of cold-blooded animals, although the demand for it is much less than in warm-blooded ones; the quantity necessary increases with an increase of muscular exertion; and the oxygen which is consumed is replaced by carbonic acid gas, which must be removed as it causes the death of animals which inhale it even in small quantities. Reptiles, and most Invertebrata that inhabit the land, become to all appearance completely inanimate when the temperature is lowered below a certain point. In this state their circulation and respiration appear to

cease entirely, and the animals may be prevented from reviving for a long time, without their vitality being permanently destroyed, if they be surrounded by an atmosphere sufficiently cold. Serpents and Frogs have been kept for three years in an ice-house, and have completely revived at the end of that period.

Smellie, who was half-inclined to believe the rare phenomenon, says, "Many abortive attempts have been made to account for an animal's growing and living very long in situations without the possibility of receiving nourishment or air, especially as, like all other animals, when put into an exhausted receiver, the Toad soon loses its existence. Upon this subject I shall only hazard two observations. The Toad, it is well known, when kept in a damp place, can live several months without food of any kind; though in its natural state of liberty, it devours voraciously spiders, maggots, ants, and other insects. Here we have an instance, and there are many, of an animal whose constitution is so framed by nature, that it can exist several months without receiving any portion of food. According to our ideas of the necessity of frequent supplies of nourishment, it is nearly as difficult for us to conceive an abstinence of four or six months as one of as many years, or even centuries. The one fact, therefore, may be as readily admitted as the other. The same remark is equally applicable to the regular respiration of air. The Toad, and many other animals, from some peculiarity in their constitution, can live very long in a torpid state, without seeming to respire, and yet their principle of life is not entirely extinguished; hence the Toad may, and actually does, live many years in situations which exclude a free intercourse with the external air. Besides, almost all the above, and similar facts, must, from their nature, have been discovered by common labourers, who are totally unqualified for examining every circumstance with the discerning eye of a philosopher. In rocks there are many chinks, as well as fissures, both horizontal and perpendicular, and in old trees nothing is more frequent than holes and vacuities of different dimensions. Through these fissures and vacuities the eggs of Toads may accidentally be conveyed by water, the penetration of which, few substances are capable of resisting. After the eggs are hatched, the animals may receive moisture and small portions of air through the crevices of rocks, or the channels of aged trees. But I mean not to persuade, for I cannot satisfy myself." Upon which it is remarked by another writer, "It is allowed to be difficult to assign limits to suspended animation, but it is very improbable that where it is probable that nature has made a provision for the ordinary period of hybernation, the animal should continue to exist for many years after the supply must have become exhausted. The theory of the conveyance of eggs by water is very feeble, and its extreme improbability will be manifest to those who will consider for a moment the mode of reproduction and the metamorphoses which the creature undergoes."

Dr. Buckland admits it to be true that reptiles occur in cavities of stone, and at the depth of many feet in soil and earth, but says, "The evidence

is never perfect, to show that the reptiles were entirely enclosed in a solid rock; no examination is ever made until the reptile is first discovered by the breaking of the mass in which it was contained, and then it is too late to ascertain, without carefully replacing every fragment, (and in no case that I have seen reported has this ever been done,) whether or not there was any hole or crevice by which the animal may have entered the cavity from which it was extracted. Without previous examination, it is almost impossible to prove that there was no such communication. In the case of rocks near the surface of the earth, and in stone-quarries, reptiles find ready admission to holes and fissures. We have a notorious example of this kind in the Lizard found alive in a chalk-pit, and brought alive to the late Dr. Clarke." The same author remarks, that the first effort of the young Toad, as soon as it has left its tadpole state, and emerged from the water, is to seek shelter in holes and crevices of rocks and trees. "An individual which, when young, may have entered a cavity by some very narrow aperture, would find abundance of food by catching insects, which, like itself, seek shelter within such cavities, and may have soon increased so much in bulk as to render it impossible to go out again through the narrow aperture at which it entered. A small hole of this kind is very likely to be overlooked by common workmen, who are the only people whose operations on wood and stone disclose cavities in the interior of such substances." The attention of the discoverer is always directed more to the Toad than the minutiae of the state of the cavity in which it was contained.

Dr. Buckland's experiments, before referred to, were as follow:—In November, 1825, he caused twelve circular cells to be prepared in a large block of coarse oolitic limestone. Each cell was about one foot deep, and five inches in diameter, and had a groove or shoulder at its upper margin, fitted to receive a circular plate of glass, and a circular slate to protect the glass; the margin of the double cover was closed round, and rendered impenetrable to air and water, by a luting of soft clay. Another block of compact siliceous sandstone, (Pennant grit, of the Bristol coal formation,) was made to contain twelve smaller cells, each six inches deep and five inches in diameter, and each under the same double cover as the first-mentioned cells. A live Toad was placed in each of these twenty-four cells on November 26th., 1825, and the double cover of glass and slate was placed over each of them, and cemented down by a luting of clay. Dr. Daubeny and Mr. Dillwyn, who were present, ascertained and noted the weight of each Toad, (they had all been imprisoned together in a cucumber frame, some of them for two months previously,) as it was immersed. The largest weighed one thousand one hundred and eighty-five grains; the smallest one hundred and fifteen grains; and they were distributed equally, small and large, among the limestone and sandstone cells. The blocks were buried in the earth of Dr. Buckland's garden, three feet deep.

On December 10th., 1826, these blocks, which had remained unopened

from the period of their inhumation, were examined. Every Toad in the smaller cells of the sandstone block was dead, and so much decayed that they must have been dead for some months. The greater part of those in the larger cells of the oolitic block were alive. No. 1, which weighed when placed in its cell nine hundred and twenty-four grains, was reduced to six hundred and ninety-eight grains. No. 5, whose weight at the same period was one thousand one hundred and eighty-five grains, had increased, it is asserted, to one thousand two hundred and sixty-five grains. Dr. Buckland observes, that the glass cover over this Toad's cell was slightly cracked, so that minute insects might have entered; but none were discovered therein. In another cell, the glass of which was broken, and its tenant dead, there was a large assemblage of minute insects; and a similar assemblage was observed also on the outside of the glass of a third cell. In the cell No. 9, a Toad which weighed at its entrance nine hundred and eighty-eight grains, had increased to one thousand one hundred and sixteen grains. The glass cover of this cell was entire, but the luting that secured it was not attentively examined; and Dr. Buckland observes, that it is probable that there was some aperture by which small insects found admission. No. 11 had decreased from nine hundred and thirty-six to six hundred and fifty-two grains.

The result of Dr. Buckland's experiments was, that all the Toads, both large and small, enclosed in sandstone, and the small Toads in the limestone, were dead at the end of thirteen months, a fate which befel all the large ones also, before the expiration of the second year. These last were examined several times during the second year, through the glass covers of their cells, but without removing them to admit air; they appeared always awake, with open eyes, and never in a state of torpor; but at each successive examination they became more and more meagre, till at last they were found dead. The two Toads which, when first examined, had increased in weight, and were at the end of the first year carefully closed up again, were not exempt from the common annihilation, but were emaciated and dead before the expiration of the second year.

When Dr. Buckland enclosed these Toads in stone, he at the same time placed four other Toads, of moderate size, in three holes cut for that purpose, on the north side of the trunk of an apple tree. Two were placed in the largest cell, and each of the others in a single cell, the cells being nearly circular, about five inches deep and three inches in diameter. These were carefully closed with plugs of wood, so as to exclude access of insects, and were apparently air-tight. Every one of the Toads, thus pegged in the knotty entrails of the tree, was found dead and decayed at the end of the first year. Four Toads were, at the time the others were shut up, each placed in a small basin of plaster of Paris, four inches deep and five inches in diameter, having a cover of the same material luted over them. These were buried at the same time and in the same place with the blocks of stone, and on being examined at the same time with them, in December, 1826, two of

the Toads were dead, the other two alive, but greatly emaciated.

Doubtless the above may be new to many readers of "The Naturalist," and thus be worthy of a spare sheet.

Devizes, March 15th., 1852.

BOTANICAL STROLLS IN THE NEIGHBOURHOOD OF PLYMOUTH.

NO. V.

SINCE my last communication was printed, mislaid notes of two other botanical excursions made in 1851 have turned up, and I accordingly transmit them for publication in the pages of "The Naturalist."

On Friday, July 18th., I had a day's botanizing, in company with two friends, who, although uninitiated in the science, were soon captivated by its charms. On the limestone of Catdown the following plants were in bloom:—*Galium verum*; which, with its light green leaves, and its golden yellow panicles of flowers, densely crowded into a kind of terminal spike, contrasted agreeably with the deeper tint of the surrounding vegetation. *Convolvulus arvensis*, (Small Bind-weed,) an humble, but one of the most beautiful of our wayside plants. What pencil could imitate the lovely roseate streaks on its petals? and its fragrance, how refreshing! *Hordeum murinum*, (Wall Barley,) in plenty; *Reseda luteola*, (Dyer's Rocket.) This, as well as *R. lutea*, which I have, I think, before mentioned as growing here, are of the same genus as the favorite Mignonette, so much cultivated both as borders to flower-gardens and in pots, but of a much larger and coarser growth. "Used in dyeing woollen stuffs yellow."—*Hooker*. *Quercus*.—Is it at the present day cultivated for this purpose?

From Catdown we crossed in a boat to Hooe; and between this place and Langdon Hall observed *Scrophularia nodosa*, (Knotted Figwort.) The botanical name of this plant is from the disease *scrophula*, which it was supposed to cure. Its flowers are small, and of a peculiar greenish purple hue, which, with the dull green of the foliage, gives the plant a lurid and uninviting aspect. *Arctium Lappa*, (Common Burdock.) The involucre have hooked bristles, by means of which the heads of flowers readily fasten themselves to the coats of animals and to clothes. Who in his boyhood has not found sport in throwing these at his companions, and thus unconsciously aided in the diffusion of the species? Shakspeare, the great poet of nature, has not overlooked this plant. In "Henry V." he has introduced it as one of the "hateful" weeds which infest neglected land; and in other plays he has drawn from it similes of attachment and constancy. Ex. gra:—

"Nay, friar, I am a kind of burr, I shall stick."

"MEASURE FOR MEASURE."

Again, in "As You Like It:"—

"*Rosalind*.—O, how full of briers is this working-day world!

Celia.—They are but burrs, cousin, thrown upon thee in holiday foolery. If we walk not in the trodden paths, our very petticoats will catch them.

Ros.—I could shake them off my coat; these burrs are in my heart."

In "Troilus and Cressida," Pandarus, uncle to the heroine, says—

"Nay, I'll give my word for her too; our kindred, though they be long ere they are wooed, they are constant, being won: they are burrs, I can tell you; they'll stick where they are thrown."

Polygonum aviculare, (Common Knot-grass;) *Bartsia Odontites*, (Red Bartsia,) a pretty plant seen growing, but one which, like many other of the Scrophularineæ, turns black and unsightly in drying: the flowers are of a reddish purple. *Agrimonia Eupatoria*, (Common Agrimony,) a plant well known to the peasantry, being largely collected by them, and dried as an officinal herb. It is a very graceful plant, of the Rosaceous tribe, having its yellow flowers on a long spike; the leaves are interruptedly pinnate, with the leaflets deeply serrated. Its name, according to Hooker, corrupted from *Argemone*, given by the Greeks to a plant supposed to cure the cataract in the eye, called *argema*. *Origanum vulgare*, (Common Marjoram:) botanical name from *oros*, a hill; and *ganos*, joy; implying that this genus is the ornament of dry hilly spots on which it flourishes. This name is most suitable; for, with their large pannicles of flowers, a cluster of these plants is one of the most cheerful sights our dry banks present.* *Clinopodium vulgare*, (Wild Basil;) *Ononis arvensis*, (Rest-harrow,) growing on the edges of the cliffs, and overhanging them in lovely profusion. *Hypericum quadrangulum*, (Square-stalked St. John's Wort.) The St. John's Worts are a very interesting class of plants; but I must not indulge in any comments upon them, lest I should encroach upon your valuable space. *Centaurea nigra*, (Black Knapweed;) and *Scabiosa arvensis*, (Field Knautia,) both gay and showy flowers, and familiar to all accustomed to ramble through the fields.

From Langdon Hall we proceeded to Wembury, situated on the sea-coast, finding in our way *Pyrethrum Parthenium*, (Feverfew;) *Linaria vulgaris*, (Yellow Toad-flax,) with its spikes of crowded, imbricated, sulphur-coloured flowers; *Filago Germanica*—one of a group of small Composite plants, difficult to identify, but so elaborately constructed as to be well deserving of study; *Centaurea Scabiosa*, (Great Knapweed.)

At Wembury we met with *Anagallis tenella*, (Bog Pimpernel,) that sweet little plant, with its creeping, thread-like stem, sending up its comparatively large pink corollas at every node. *Sparganium ramosum*, (Branched Bur-reed;) *Myosotis palustris*, (Forget-me-not.) 'So much has been said, and so

* This is another of the plants not unknown to our great bard. He designates it "sweet marjoram;" and it forms a part of the bouquet which Perdita, in the "Winter's Tale," presents to Polixenes:—

"Here's flowers for you;
Hot lavender, mint, savory, marjoram."

aptly and poetically said, of this charming flower, that my timid pen dares not essay an additional word. *Senecio sylvaticus*; *Epilobium hirsutum*; *Juncus lampocarpus*; *Ranunculus Flammula*; *Stellaria uliginosa*; and *S. glauca*. The two last-mentioned plants escape the eye of the casual pedestrian, but they are two of the most beautiful little gems that deck the coronet of Flora. *Galium palustre*, remarkable for the pure whiteness of its flowers, which, although minute, shine conspicuously forth amid the dank vegetation of bogs and marshy ground, where it abounds; *Lythrum salicaria*, (Purple Loosestrife,) in serried ranks of stalwart plants, one mass of gorgeous bloom. *Verbascum Thapsus*, (Moth Mullein,) a solitary plant, rarely gregarious, (to borrow a term from zoology,) capricious in its habits—now flourishing in all luxuriance in the crevices of some dry stone wall, now by the wayside, and anon in some corn-field, or daring to intrude within the hallowed precincts of some trim parterre, in which latter situation I have seen it, with its congeners, *V. virgatum* and *V. Blattaria*, grow to the height of six or seven feet, and to send out branches on all sides. *Sonchus arvensis*; *Conium maculatum*, (Hemlock.) This is a handsome, tall-growing, umbelliferous plant, highly poisonous, but easily distinguished from its allies by its fœtid smell and spotted stem—characters which should be pointed out to children, who are so apt to taste the flowers which they gather. It is one of the ingredients of the witches' "charmed pot," in "Macbeth:"—

"Root of hemlock, digg'd i' the dark."

In the second scene of the fifth act of "Henry V.," where Burgundy is bewailing the woes that have befallen France, in consequence of wars, this infelicitous weed is mentioned by him as one of the "cumberers of the ground," the cultivation of which had been neglected:—

"Her fallow leas
The darnel, hemlock, and rank fumitory
Doth root upon."

The next plant noticed was the *Salvia Verbenaca*, (Wild English Clary, or Sage.) It is very frequent in our neighbourhood, especially near the sea, on dry stony banks; but, according to Hooker, it is rare in Scotland. That pretty denizen of waste ground, *Verbena officinalis*, (Common Vervain,) next arrested our attention. It is a charming thing, with its long, slender spikes of small and distant pale purple flowers; and possesses additional interest from the tradition that it was revered by the Druids, and gathered by them with religious ceremonies. It is a curious coincidence that the Greeks also should attach extraordinary powers to this herb, especially in incantations. It was held in high esteem by the Romans. Even so late as the last century, (vide Penny Cyclopædia,) scrophula was pretended to be cured by the root of this plant being hung around the patient's neck. It is by no means uncommon in this district. Hooker says it is "rare in Ireland;" while the author of the article above alluded to states that "it is not found in Ireland."

Perhaps some practical botanist in that country could enlighten us on this point? It appears to have a wide range, being an inhabitant of New Holland

The next plant on my tablets is *Torilis nodosa*, (Knotted Hedge Parsley;) and then follow three Thistles, namely, *Carduus nutans*, (Musk Thistle,) a large and handsome species, "said," as Hooker has it, "to smell powerfully of musk in warm weather—most so in the evening, according to Lightfoot;" but your correspondent has never detected the scent; *C. tenuiflorus*, (Slender-flowered Thistle,) plentiful near the sea on our coast; and *C. arvensis*, (Creeping Plume Thistle.) *Aira caryophyllea*, that graceful little Grass, was waving its pensile heads; and the elastic sward was overgrown with *Thymus Serpyllum*.

"I know a bank whereon the wild thyme blows."

MIDSUMMER NIGHT'S DREAM.

Then came *Daucus Carota*, (Wild Carrot,) with its wide-spreading umbels of white bloom, curiously marked in the centre with a solitary abortive floret of a purple colour. *Cynoglossum officinale*, (Common Hound's-tongue,) now met with for the first time in my rambles; and much pleased was I to find it, although it was getting out of flower. The nuts are very peculiar; but as untechnical language would fail to describe them, this vague observation must suffice. The hedges were adorned with *Mulva Moschata*, (Musk Mallow,) one of the most beautiful of our wild flowers, in colour rivaling the Roses of the garden. On the verge of precipices overhanging the sea, *Carlina vulgaris*, (Common Carlina Thistle,) stood erect, with its spinous stem. This plant rarely acquires a large stature in this neighbourhood, the stem being more frequently single-flowered than "many-flowered corymbose," as described. I recently received from the north of England a specimen with several heads of flowers, and altogether presenting a different appearance, so far as growth is concerned, from the example here met with. And this is not the only plant in which I have noticed a more luxuriant condition when growing farther north, than in this mild and southern position. What is the cause of this? *Mula Conyza*, (Ploughman's Spikenard,) completed the list of our findings about Wembury.

At Noss, a village lying on the banks of a creek running in from the River Yealm, we discovered a colony of *Verbascum virgatum*, (Large-flowered Primrose-leaved Mullein,) upwards of thirty roots "all in a row" by the side of a hedge, and, being in full bloom, a very fine show they presented. What a catch, methought, they would have been for some rapacious collector, whose eyes had never feasted on such a sight, and whose vasculum had never held so rich a prize!

At Newton, another village on the opposite shore of the creek, *Feniculum vulgare*, (Fennel,) was abundant.

"There's fennel for you."

OPHELIA.

Ligustrum vulgare, (Privet,) fenced the cottages, and *Sedum reflexum*, (Crooked

Yellow Stonecrop,) with its succulent leaves and cyme of large and brilliant flowers, was growing from between the stones of old walls. By this time the shades of evening had closed around us, and we bent our steps homeward after a pleasant day's excursion.

Later in the month of July, I went with a non-botanical party to Gunnislake, on the banks of the Tamar—that matchless river, whose beauties have been so sweetly sung, and without “local prejudice” too, by our native poet, Carrington; but, as I had no opportunity to search for plants, it must not be supposed that the few hereafter mentioned bear any proportion to the number to be found in this favoured locality. Here are the famous Morwell Rocks, where that favorite and graceful Fern, the *Asplenium lanceolatum*, and the rarer *Hypericum linariifolium*, delight the adventurous botanist.

From the holiday steamer which had borne us from Plymouth over the tranquil waters of the Tamar, we landed a little below Calstock, whence a winding path, which we followed, leads along the margin of the river to that village. By the way I noticed, in addition to many plants already included in these papers, *Apium graveolens*, (Wild Celery;) *Senecio aquaticus*, (Marsh Ragwort;) *S. Jacobæ*, (Common Ragwort;) *Achillea Millefolium*, (Yarrow;) *Pyrethrum inodorum*, (Corn Feverfew, or Scentless Mayweed;) *Sonchus oleraceus*, (Sow Thistle;) *Epilobium montanum*, (Broad Smooth-leaved Willow-herb;) *E. parviflorum*, (Small-flowered Hairy Willow-herb;) *Galium Mollugo*, (Great Hedge Bed-straw;) *G. Aparine*, (Goose-grass, or Cleavers;) *Teucrium Scorodonia*, (Wood Germander, or Sage;) *Erica cinerea*, (Five-leaved Heath;) *Lonicera Periclymenum*, (Honeysuckle, Woodbine.)

“And honeysuckles full of clear bee-wine.”

KEATS.

The woodbine wild,

“That loves to hang on barren boughs remote
Her wreaths of flowery perfume.”

MASON.

Crepis tectorum, (Smooth Hawk's-beard;) *Agrostis vulgaris*, (Fine Bent-grass;) *Hypericum perforatum*, (Perforated St. John's Wort.) I could fain say a few words about the beauties of this plant, did I not feel conscious that this article is already too long. *Rosa canina*, (Dog Rose,) filling the air with grateful odours.

“And first of all the rose, because its breath
Is rich beyond the rest, and when it dies
It doth bequeath a charm to sweeten death.”

BARRY CORNWALL.

Rubus fruticosus, (Blackberry;) well known to every truant school-boy, and relished far beyond the choicest dainties of the table.

“Were reasons plenty as blackberries, &c.”

FALSTAFF.

Ballota nigra, (Horehound;) *Lapsana communis*, (Nipplewort;) and *Senebiera didyma*, (Lesser Wart-cress.)

Along the road between Calstock and Gunnislake, were observed *Erythræa Centaurium*, (Common Centaury,) a herb collected in large quantities for officinal purposes. I have seen an old herbalist—a woman—bearing home upon her bent and yielding shoulders as much of this herb as she could stand under—the result of a day's labour—to be disposed of to some chemist at about one penny per pound; and thus through the summer she earns her scanty livelihood. *Betonica officinalis*, (Wood Betony,) another useful herb; *Sedum Anglicum*, (English Stonecrop;) *Lotus major*, (Narrow-leaved Bird's-foot Trefoil;) *Circæa lutetiana*, (Enchanter's Nightshade;) *Stachys sylvatica*, (Hedge Woundwort;) *Leonurus Cardiaca*, (Motherwort,) a plant unfrequent in this neighbourhood; indeed, until discovering it here, I knew of only one habitat for it, which was at Rame, Cornwall. It is, I believe, nowhere a common plant. "Named from *leon*, a lion; and *oura*, a tail, from a fancied resemblance in the plant to a lion's tail."—*Hooker*.

From Gunnislake we descended to the Weir, up to which point the River Tamar is navigable. The wooded scenery of this part is of surpassing magnificence.

"The surging snake
Has not more folds than Tamar. * *
Each wood-fringed headland doubled, we shall pause
Beneath the flashing Weir.

CARRINGTON.

The only plants here added to my list were the Meadow Sweet, (*Spiræa Ulmaria*,) and White Valerian, (*Valeriana officinalis*.) At evening we returned, steaming gently down the sinuous river, our way enlivened by cheerful music performed by a band on ~~beach~~.

ISAIAH W. N. KEYS.

Plymouth, 1852.

NOTES ILLUSTRATIVE OF THE GEOLOGY OF PART OF THE SHORES OF EAST LoTHIAN AND BERWICKSHIRE.

BY JAMES P. FRASER, ESQ.

Read before the Natural History Society of Glasgow, on April 6th., 1852.

(Continued from page 177.)

THE rocks which lie unconformably to these Schists are the beds of the Old Red Sandstone. The Old Red Sandstone at this point presents some varieties of structure, varying in fineness of texture from a compact sandstone to a coarse conglomerate, or pudding-stone, in which many of the imbedded fragments and pebbles are nearly a foot in diameter. In the conglomerate form, it is principally composed of water-worn pebbles of slate and schist, greywacke slate, and pieces of quartz, imbedded in a dark-coloured sandy cement. These pebbles are generally well rounded, as if long subjected to



Section as seen from the opposite side of the ravine, about one hundred feet high. *a*, unconformable beds of Old Red Sandstone; *b*, vertical beds of Silurian strata. These beds of the Old Red are the finer quartzose Sandstone.

attrition by the action of water. The fragments of quartz, however, present an exception to this rule, being of two kinds; first, well rolled and polished pebbles, possibly originating in some distant and ancient mass of quartz, which has now disappeared; second, angular fragments which seem to have been imbedded in the conglomerate immediately after they were detached from the parent mass. These last probably proceeded from the larger veins of quartz so numerous in the slates and schists, the softer materials in which they occur, forming part of the cement which binds the conglomerate together. The fragments of the schist are also very angular and sharp. Another appearance which the Old Red Sandstone presents along a great portion of the coast, at all events from Siccar to the Cove, and which I think proper to notice here, is, that in its conglomerate form it frequently alternates with narrow beds of finer Sandstone. These alternations have sometimes been supposed to indicate partial elevations and subsidences in the bed of the sea where the materials were deposited; but from their frequency, it seems much more probable that they ought to be attributed to the periodical increase and diminution of those currents or streams which bore the gravel to the ocean.

At Siccar we have the northern junction of the newer Palaeozoic rocks with the older of the Lammermuir ridge; and at St. Abb's Head, near Coldingham, which I had the pleasure of seeing last July, we have the southern junction, but the immediate contact is not visible; the Lammermuir Hills running east and west. The section which the sea coast makes at St. Abb's is highly instructive, from the great disturbance of the older strata, and the variety of

their contortions. All along the coast from Siccar to St. Abb's, a distance of about ten miles, these flexures are most distinct; and the nature of the curve into which the schists are bent cannot be misinterpreted, seeing that besides transverse sections from north to south, the deep indentures which the sea has made, and the projecting points of rock exhibit many longitudinal sections in a direction from east to west.

St. Abb's Head takes its name from Abbe, or Ebba, sister to Oswy, King of Northumberland, Abbess of the Nunnery of Coldingham, which is said to have been the oldest in Scotland; it is mentioned as early as 661, and at this period she was at the head of it. It is said she came to this solitary headland to perform her devotions, and it was at all times her favorite resort for meditation.

But to return to their still older history. The rocks are the same with those at Siccar point;* they consist principally of a bluish slate, and they frequently bear a ripple-marked surface. The undulations of the beds reach from the top to the bottom of cliffs, from two hundred to three hundred feet in height, and there are sixteen distinct bendings in the course of about six miles, the curvatures being alternately concave and convex upwards.



Cliffs at St. Abb's. Curved strata of slate, height, three hundred feet.

For the sake of future remarks I may mention here, that since I came home, I have learned the fact of the occurrence of a large mass of real granite in the vicinity of the village of Priestlaw, in Lammermuir. I will now detail the rest of our trip before I pass on to any hypothetical conclusions by way of explaining the phenomena which have passed under review.

After leaving Siccar we retraced our steps—in the face of a biting north wind, accompanied by two sharp showers of hail—to Cockburns-path, and struck off by another road which brought us to the Cove, so called, I presume,

* These rocks stretch across the country to Ayrshire, and form the prevailing rock of the whole of the south of Scotland. They run in a straight line south-west from Siccar point to Girvan, constitute the rocks of the whole of the south of Ayrshire, Wigtonshire, Kirkcudbright, Dumfries, Peebles, and Selkirkshires, and the northern portion of Berwickshire. Sir Roderick Murchison has examined them at Girvan and Dumfries, and has, I believe, identified them with the Caradoc and Llandeillo flags, or the lower Silurian rocks.

from the sheltered position it occupies between two lofty heads of land, the sea having made a very deep indentation. The features of this spot are highly interesting also, but as they are nearly those which I have already described, I will not trouble you with a repetition; I would only notice that there is another intrusion of trap, similar to that found at Dunbar, recognised here.

We now wended our steps homewards, intending to return by the sea-coast for the purpose of visiting the Pan Quarry, where, we were told, are to be seen some fine specimens of fossil trees, but as we found ourselves somewhat footsore, we thought it most prudent to go by the high road. Having arrived at Dunbar, we visited again the raised beach, mentioned by Mr. Robert Gray,* and we had the satisfaction of proving his statement with regard to *Helices* being found in it, for we had not been many minutes at work before I extracted a specimen of *Helix nemoralis*, evidently as old as its associated shells. I mentioned this fact to our excellent Vice-President on my return, and he informed me that he was not surprised at it, as *Helices* frequently wander down to the shore. All the shells we found are those now living on our coasts.

By way of conclusion I may, I think, endeavour to relate as concisely as possible the history of this coast, so far as I have had the means of examination, without being accused of an unreasonable spirit of hypothesis.

1st.—A great physical group has been deposited in a region which is now occupied by the line of coast, stretching from Sicear point to Coldingham bay—the schists and clay slates of the Silurian age.

2nd.—Afterwards came the period when the granitic axis was elevated. When the elevatory movements began, and how long they were continued, I do not think it is possible to determine; but they ended before the deposition of the Old Red Sandstone; for before that period the granitic axis and the Silurian masses had assumed their present relative position. I strongly suspect that two large veins of granite must lie on either side of the contorted schists; for in no other way can I explain the immense flexures, and the innumerable quartz veins of all sizes which ramify them. Now, after the strata were thus bent and contorted, let us suppose a denuding current to sweep away the higher and more exposed portions, the strata would thin off, and present in many places vertical columns, which they actually do. It is not assumed that the disturbing action ceased at an epoch anterior to the deposition of the unconformable Sandstones. On the contrary, there is no doubt that it continued long afterwards, and that these beds have undergone fractures and dislocations like the older strata, though to a smaller extent. In this way alone can I account for the highly crystalline state of these sedimentary deposits.

3rd.—After this, were deposited the conglomerates and finer Sandstones of the Old Red, which range from Dunbar to Sicear point, and extend inland across the whole country, with one or two breaks to Ayrshire, and a patch beginning at Berwick upon-Tweed, crossing as far as Jedburgh and Selkirk.

* *Vid.* Proceedings of Natural History Society of Glasgow, first fasciculus, page 6.

4th.—Within the period of the two preceding groups, there seem to have been extensive tracts of elevated land, covered with the ancient plants of the carboniferous era; of this we are certain, that the isolated coal beds which characterize this shore, were deposited in regular order on the preceding group. The underlying strata of Old Red Sandstone show a regular gradation from the conglomerate to a fine quartzose Sandstone; but before passing finally into the coal measures, we find the same pebbles, or rather fragments of which the conglomerate is composed, imbedded in lime, and forming a calcareous conglomerate, after which succeed the ordinary beds of lime, shales, and sandstones. There is, therefore, no sudden change from the one set of strata to the other. The transition is perfectly gradual, and in perfect harmony with those theories resulting from the researches of modern geologists, which all tend to demonstrate that the old hypothesis of vast and sudden convulsions, revolutionizing at stated epochs the whole surface of the globe, have no place in the economy of nature, where every thing is, and ever has been, regulated by laws, whose grand characteristic is the principle of a slow but certain progression.*

5th.—A second great mineral axis now came into force, ranging nearly east and west, and elevating and tilting the strata of the Old Red and Carboniferous groups. We see this axis in the trap rocks about Dunbar, and at the Cove, and it explains without doubt the high inclination, the north-eastern dip, and the occasional alterations of these beds. In attempting to trace the nature of this change, we may suppose the rocks of the district to have presented three different phases in succession. First, the sedimentary rocks would be deposited in a level position, and the surface would then form one continued subaqueous plain. Second, the eruptions of trap at several localities would fissure and tilt the beds, throw up some portions, and depress others: the surface would then exhibit a vast assemblage of heights and hollows, bounded by mural precipices. Third, diluvial currents would sweep away the more tender and more exposed strata, wearing down all the prominent parts, till its action was arrested by the firmer rocks, especially by beds of trap. These beds of trap, though originally injected at a considerable depth, would now occupy all the salient points of the surface, and give the country its peculiar physiognomy, as is the case in the immediate neighbourhood of Dunbar. It has been here assumed that the eruption of the trap rocks took place simultaneously, although it *may* have occurred at different periods. My object, however, is not so much to paint the condition of the whole surface at any one time, as to convey an idea of the sum of the changes which it has undergone from the causes referred to. If these views be even approximately true, they help us to account for the very interesting phenomena of this coast; but I admit they *may* be open to doubt, as my examination of this coast, in extent about thirty-one

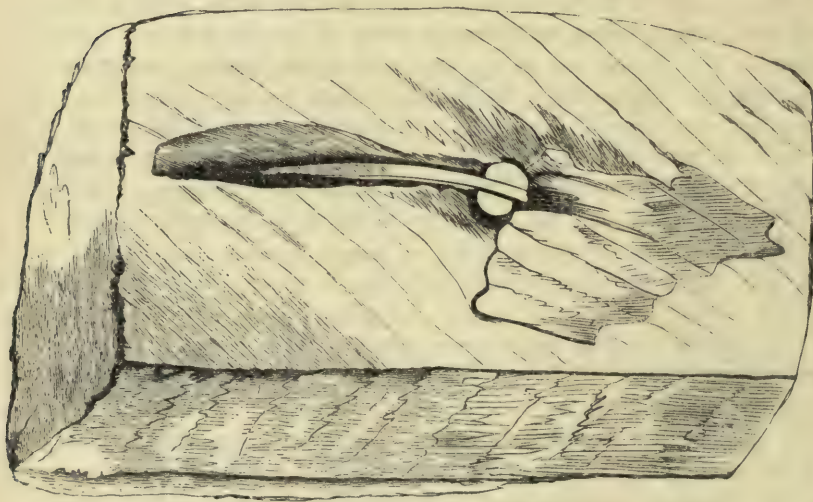
* Perhaps it may be necessary that I should guard this statement; it is not to be supposed that I do not admit that there have been forces in operation greater than any that we now witness on our globe, giving those physical features to our planet, which add so much to its beauty and our enjoyment; but I do not agree with those who state that every group has been ushered in and closed with periods of violent disturbance.

miles, was not so minute as I could have wished, on account of my lack of sufficient time.

In fine, this is a shore I would recommend to a young geologist, who is anxious to learn more of the science than can be gained from books or cabinets, as the disposition of the various stratified formations, their relations to each other, and to the subjacent and superincumbent igneous rocks, altogether form an excellent school for the first labours of the practical geologist. The beginner will learn more here, with a slight theoretical knowledge of the science, in two weeks, than he could learn in two months from books; here he will learn to observe, and apply his observations.

FOREIGN BODY FOUND IN
THE TRUNK OF A BEECH TREE, (*FAGUS SYLVATICA*.)

BY C. W. ROTHERY, ESQ.



ABOUT two years ago a Beech tree was blown down in front of my house, which I sent to the saw-mill to be cut into planks. The workmen did not proceed far when they found that some body in the wood was causing an obstruction to their labour; and after an effort to overcome it, found, on completing the section, that they had actually cut through a piece of iron, having all the appearance of a nail. I had it brought home and examined; and by carefully removing the dark-coloured rotten mass of woody fibre which surrounded it, succeeded in withdrawing an old gimblet, one-half of the handle of which had been cut off in the operation of sawing, and the iron considerably filed at one place.

The part of the trunk where this object was found was about two feet

below the axil of a large branch, so that it appears probable that some one—it might be even Southey—using a gimblet in the garden had stuck it carelessly into the axil of the branch, and so left it until by the lapse of time, the yearly growth of the woody layers had completely covered it in.

I have now in my possession the gimblet, with the portion of the stem in which it was found; and send with this a sketch of them.

Greta Hall, Keswick, Cumberland, April 29th., 1852.

APPEARANCE OF SOME OF OUR
EARLIEST SPRING FLOWERS, ETC., FOR 1852, NOTICED IN
THE NEIGHBOURHOOD OF CHIRNSIDE, BERWICKSHIRE.

BY GEORGE HENDERSON, ESQ., SURGEON.

FEBRUARY.

- 23rd.—*Alauda arvensis* singing. I have heard it in some seasons as early as the 9th.
23rd.—*Merula vulgaris* first heard.

MARCH.

- 5th.—*Vanellus cristatus* heard.
20th.—*Viola odorata* flowered.
23rd.—*Draba verna*.
— *Ficaria ranunculoides*.
— *Lamium album*.
— *Leontodon Taraxacum*.
— *Potentilla fragariastrum*.
26th.—*Geotrupes stercorarius* abroad in the evenings.
26th.—*Bombus terrestris* feeding on the willows.

APRIL.

- 1st.—*Tussilago Farfara*.
6th.—*Narcissus pseudo Narcissus*.
10th.—*Anemone nemorosa*.
11th.—*Vanessa urticae* on wing.
— *Pontia rapae* on wing.
14th.—*Oxalis Acetosella*.
15th.—*Tussilago Petasites*.
26th.—*Primula vulgaris*.

Chirnside, May 18th., 1852.

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APRIL.

- 29th.—*Veronica chamaedrys*.
30th.—*Hirundo riparia* arrived.

MAY.

- 1st.—*Viola canina*.
2nd.—*Caltha palustris*. House Swallows arrived.
2nd.—*Primula veris*.
— *Prunus spinosa*.
6th.—*Papilio cardamines* on wing.
8th.—*Spartium Scoparium*.
— Corn Crake heard.
10th.—*Alchemilla vulgaris*.
— *Geum rivale*.
— *Saxifraga granulata*.
— *Erysimum Alliaria*.
— *Stellaria holostea*.
— *Ranunculus bulbosus*.
— *R. auricomus*.
— *Vicia sepium*.
— *Orobus tuberosus*.
— *Anchusa Sempervirens*.
— *Viola lutea*.
11th.—Bat flying about in the evening.
18th.—*Cardamine pratensis*.
— *Mespilus oxyacantha* just beginning to bloom.

ANOMALY IN THE STRAWBERRY LEAFED CINQUEFOIL, (*POTENTILLA FRAGARIASTRUM*.)

BY J. B. DAVIES, ESQ.

WHILE searching a lane near the race-course at Ripon a few days ago, I found a specimen of the common barren Strawberry, (*Potentilla Fragariastrum*), having six petals, the normal number being five, and one of them occupying the very centre of the flower, (Fig. 1;) in fact it was an altered carpel, becoming petaloid. It is no uncommon thing for stamens to be so converted, and even occasionally the pistil, but we seldom find the latter taking the lead in the development. In the case of the double-flowered Cherry, we have all, or nearly all the stamens converted into petals; and the pistil, which is composed of a single carpel, assuming the form of an ordinary leaf, (Fig. 2.) In short, in all cases where flowers become double, the change proceeds from without inward; but here, nature, to shew that she will be bound by no law, reverses this order, and converts one of the carpels into a perfectly-formed petal, (Fig. 3,) differing in no particular from the ordinary petals, while the remainder of the carpels, together with the whole of the stamens, are left unchanged.



Ripon, March 22nd., 1852.

Miscellaneous Notices.

Hare taking a bath.—A friend of mine, upon whose veracity I can safely rely, tells me the following strange freak of a Hare:—He was walking by the side of a large pool on a very hot day last summer, when he observed at some little distance some animal swimming about very leisurely in the water. He thought it must be an Otter, but, on approaching it, discovered that it was a Hare, which, on seeing him, swam leisurely to the bank, jumped out of the water, shook herself, as a Dog would under similar circumstances, and toddled quietly off.—M. CURTLER, Bevere, Worcestershire, March, 1852.

A Sow killed by the bite of an Adder.—In the month of June 1851, a full-grown Sow, belonging to a farmer on the borders of the New Forest, in this parish, while grazing in a meadow, was bitten by an Adder on the tongue. The poor animal in a short time began to swell and foam at the mouth, and in a few hours after she died, in great apparent pain. One rather remarkable feature in the case was, that after the bite she could not be induced to move forwards, but persisted in going backwards, and this retrograde movement continued until the poor creature *backed out* of existence. It is not quite easy to decide which was the first aggressor, the Adder or the Sow. I am inclined to think it very probable that the Sow made the first attack; fancying, perhaps, the Adder would be a choice morsel, she seized it, and thus became "the biter bit." It is possible, however, that she might have seized it accidentally while eating, and thus received the fatal wound; and, were it not for the well-known carnivorous propensities of Pigs, and Sows in particular, this would appear the most probable cause of the interview between the quadruped and the reptile. I was once intimately acquainted with a Sow which took great delight in devouring fowls. Whenever these unfortunate birds, tempted by the meal on which she was fed, or a stray crust or potatoe floating about her wash, ventured into her sty, in the hope of sharing her repast, she would make a furious grab at them with

her by no means amiable-looking open mouth, and happy indeed were those who escaped from her jaws, it might be only to hear her "crunching" the bones of their less fortunate companion. Her custom was to devour the whole of the fowl, save the large wing feathers and a few of the smaller ones which escaped in the process. She never left such numerous traces of her banquet as a Hawk would leave, had he been the murderer.—J. PEMBERTON BARTLETT, Fordingbridge, Hants.

Anecdote of a Dog.—The sagacity of these interesting animals comes so very near reason in some instances, as to make it a most difficult question, where instinct ends, and the rational powers begin; in other words, whether what we call reason is the exclusive property of the human creature. I remember a most singular case of intelligence in a beautiful little King Charles Spaniel, which belonged to my sister, which occurred a few years since. This little animal was not only the most beautiful, but also the most testy little fellow I ever saw; but I am bound to speak well of him, because, for some reason or other, I was an especial favorite, and although he sometimes snapped even at me, he never did more, which few others could say; and I own that although I saw his faults, I was exceedingly attached to him, and he in return had the most perfect confidence in me, and understood my looks in a most extraordinary manner, and it was a common practice not only with myself, but other members of our family, when we left the room where he was, to promise in words to return, and not go out without him; for his sporting propensities were very strong, and I never knew a more indefatigable or better finder than he was. One fine day I was engaged in my own room writing, and little "Charlie" lay on the rug dosing, and very snug and comfortable, and twice or thrice during the morn I had occasion to take my cap and go out for a few minutes, but on each occasion, promising to return, he only looked up, and again settled himself to sleep; but at last, thinking I would take a short walk, but not particularly wishing to have the incumbrance of a Dog with me, I took my cap once more, and promised to return as usual, but as I passed the corner of my room took up a small stick, which was usually my walking companion; but this circumstance was sufficient to make him disbelieve what was certainly intended to deceive him, and it would not accordingly do this time, for he immediately followed me to the door, showing that he was not to be done, and I own that my heart smote me, and I took him with me, being no less pleased with his intelligence. Now we know it is a very common thing for a Dog, if you do not wish him to follow you, and therefore shut him in by a front door, to come out and join you by the back door, if it be open; or if conscious of doing that for which he has been chastised, on the approach of any person immediately decamp; but it appears to me that the anecdote I have just related is a greater refinement of instinct than I ever heard of or met with, and worthy to be recorded of a little animal who has long since met the melancholy end of all pets, the unnatural life he led producing asthma, and unhealthy obesity, which rendered it necessary to put him in the hands of a Dog-doctor, where he soon after breathed his last, and lies buried under a small stone in those very shrubberies which had so often resounded to his joyous cries.—O. S. ROUND, Lincoln's-Inn-Fields, February 3rd., 1852.

The Fern Owl. (*Caprimulgus Europæus.*)—It is not in all heath-clad districts that you meet with these birds, although it is almost always in such districts that they are found, and I cannot help thinking that, as a general fact, they are not so numerous in this country as I remember them in my boyhood, now some twenty-five years since. I have travelled a good deal about England, and have consulted those who were as familiar with Scotland, a knowledge I cannot equally pretend to; and my impression is that which I have stated, because, wherever I go, natural objects are chiefly interesting to me, and hence without effort I make my silent observations. The neighbourhood in which I spent the earlier part of my life, Bagshot Heath, has always been the peculiar resort of the Fern Owl; and I suppose no one has had more opportunities than myself of observing their mode of life, and obtaining specimens. By imitating their call, which is not difficult, in the summer's evening, you may soon have the pleasure of their company; and I remember in this manner bringing five or six flying round my head in a very short time. There has been a great deal of discussion and conjecture relative to the serrated nail of the middle toe, but I think I am quite right in saying that no satisfactory conclusion has been come to on the subject. It may be to secure their insect prey, to pass through their feathers, or to secure their footing on the leader of a tree, and is probably used for more than one purpose; but we find in the Heron the same conformation, which might

be in that case more satisfactorily conjectured, having regard to the slippery nature of their prey; but having paid particular attention to the matter, I consider it rests in conjecture only. At some future time I may have some more to say on the subject, but for the present shall confine myself to this general observation.—Idem.

The Buzzard.—An incident occurred to me last year which I thought might be interesting to some of the readers of "The Naturalist." It was a fine day in the middle of the summer, when, walking to the head of the valley of Easdale, in Westmorland, I saw a fine specimen of the Buzzard, (*Buteo vulgaris*,) curving about the crags on the east side of the valley. The bird seemed alarmed by the appearance of myself and servant, and was very irregular in its flight. At that time—being able to imitate the cry of the Buzzard—I thought I would try if I could attract the feathered sovereign of that rocky territory, so I ordered my man to lie down upon the heather, and I soon followed his example. After remaining quiet for a minute or two, I commenced the cry, and it was a beautiful sight to see the bird gradually ascend and wheel round to a point immediately over my head. This position I could not witness myself, but it was observed by my attendant. The Buzzard gradually descended to within four or five yards of my cranium, when the witness, becoming alarmed for the safety of my apparel or my person from the shock of the Hawk's attack, immediately arose, and scared the creature away. Had I remained still much longer, no doubt the bird would have dropped upon me, carrying away a portion of my arm, or talons filled with hair; which might look more ridiculous to the observer, than be pleasant to the sufferer. I have in my possession a Buzzard, taken from a nest in Lonscale Fell, the nose of Skiddaw, about two years since: it is very tame for a bird of that species, and will eat its food in my presence. The bird will not refuse to accept meat when offered to it by the hand. I do not think it would be happy to associate with its own class, it has become so far domesticated. This does not shew much nobility about the Buzzard, or inclination to roving habits; but it seems as if the creature preferred solitude in a hay chamber, resting near a barred window, to the independent habits of the untamed Hawk.—C. W. ROTHERY, Keswick, May, 1852.

Heronry.—In the list of Heronries still to be found in England, which has appeared in your interesting magazine, "The Naturalist," no mention is made of one at Chilham Castle, in Kent, the seat of J. B. Wildman, Esq. There, however, the Herons have a colony, to which they return almost invariably on the same day of the month every spring.—J. PEMBERTON BARTLETT, Fordingbridge, Hants., March 10th., 1852.

Additional Heronry.—In addition to the list of Heronries mentioned at page 60 of vol. i., and elsewhere, in "The Naturalist," may be added one in the domains of Warwick Castle, the truly magnificent seat of the Earl of Brooke and Warwick. Of this I was informed by some friends of mine, who had been there a few years ago, and also a fortnight back, whilst there, by one of the gardeners at the Castle, but unfortunately time would not allow of my visiting it.—W. B.

In addition to those already enumerated in "The Naturalist," a *Heronry* is still in existence at Wolverton Wood, near Lynn.—T. SOUTHWELL, Lynn, Norfolk, May 14th., 1852.

Occurrence of the Bee-eater, (Merops apiaster,) in Aberdeenshire.—A fine specimen of this *rara avis* was shot about three weeks ago, (*about June 4th.*) by the gardener at Kimmundy, (nearly the extreme north-east point of the county,) and is at present in my hands: it was gorged with bees when shot. The plumage is remarkably brilliant and perfect.—THOMAS FERGUSON, Glasgow, June 25th., 1852.

We have to apologize for the non-appearance of the above in the August number. It was overlooked in the confusion consequent on a change of residence.—B. R. M.

Chiff-chaff, (Sylvia hippolais.)—One of these interesting little fellows was shot here on the 22nd. of March; wind in the south at the time. I have the skin by me now, which I intend sending to a gentleman at St. John's, New Brunswick, along with several others that I have.—GEORGE B. CLARKE, Woburn, Beds., April 12th., 1852.

Note on the Starling, (Sturnus vulgaris.)—A dark cream-coloured Starling was shot by a cousin of mine, near Colchester, this autumn, and is now in his collection.—R. B. P., Shelly, Stoke-by-Nayland, January 2nd., 1852.

*Note on the Starling, (Sturnus vulgaris).—*In looking over my notes I find some observations on the number of times a pair of Starlings fed their young, which I give in the hope that it may prove useful. The hours in the table were in the days between May 20th. and 25th.—On the 21st., thirty-four times between five and six, and twenty times between six and seven; a.m.; twenty-five times between one and two; twenty-five times between three and four, twenty-four times between four and five; and twenty times between five and six, p.m., which is twenty-four times per hour on the average. Then suppose they began at five, a.m., and continued feeding until eight, p.m., which is sixteen hours, in that time they destroyed nearly four hundred grubs and worms. And when we consider that within twenty yards from where I sat, there were half-a-dozen nests of Starlings alone, the quantity of larvæ destroyed must appear very great. And yet there are many other birds besides Starlings that consume as many. These are facts, for I watched them myself for hours.—EBLANA, Dublin, February 18th., 1852.

*Early appearance of the Swallow, (Hirundo rustica,) at York.—*It is we believe universally admitted that one Swallow does not make a summer, but it is not accurately defined what number does. To-day, when walking near the river Ouse, about half-a-mile above York, at half-past five, p.m., I saw two Swallows hawking over the river. The wind was blowing fresh in squalls from the east, in which quarter it had been for some time past. The weather was bright and sunshiny.—B. R. M., York, April 23rd., 1852.

*The Swallow, (Hirundo rustica).—*The Swallow was seen here for the first time this year, on April 11th. I saw five of them myself sporting and twittering about this afternoon, as if it were the height of summer; wind in the south-east. This is four days earlier than last year.—GEORGE B. CLARKE, Woburn, Beds., April 12th., 1852.

The Swift, (Cypselus apus), was first seen at Heacham Hall, Norfolk, on the 12th. of May.—J. W. LUKIS, Heacham Hall, May 21st., 1852.

*Arrival of the Hirundinidæ.—*In looking over the notices in your pages of the first appearance of the Swallow, (*Hirundo rustica*), in various localities, I find only one mention of it earlier than I and my friends have observed it this year in our neighbourhood; I therefore think it worth recording among your notes on the subject. The notice in No. 8 of three Swallows being seen on the 3rd. of April, 1851, by a boy at Fleetwood, in Lancashire, may perhaps be considered a little doubtful, as the writer did not observe them himself till the 12th., and the situation of that westerly county almost precluding the possibility of so early an arrival, so that without calling into question the veracity of the young gentleman, we may doubt the act. At Lynn, in Norfolk, they appeared on the 18th.; at Upper Helmsley on the 20th.; at Great Bodwyn, Wilts, on the 13th.; at Norwich on the 18th.; at Black Hall, Devon, about the 11th., for some years; at Plymouth on the 13th., etc. This year on the 9th., (Good Friday,) during the prevalence of the north-east wind, between six and seven in the evening, my sister observed two Swallows fly over this place, but they appeared to be only passing, as they or others were not seen again till the 15th; but in the valley within a mile of this town, at a village called Wooburn, a friend of mine driving there, saw them on the 12th. They seemed to prefer the sheltered situation and milder air of the lower ground, and were not again seen by us till the 15th. Then only a few had ventured, but on the 17th., many made their appearance, and they soon became general. I shall be anxious to know if they were observed equally early in other parts of the country. This town stands on the Chiltern Hills, and is very cold.—AGNES CATLOW, Beaconsfield, May 7th., 1852.

A LIST OF THE WINTER BIRDS OF PASSAGE,

RANGED IN THE ORDER IN WHICH THEY APPEARED AT HENLEY-UPON-THAMES IN 1851.—BY C. STUBBS, ESC.

No.		No.	
1.	Wild Goose.....August 19th.	8.	Wood Pigeon.....November 1st.
2.	Lapwing.....October 3rd.	9.	Bleater Snipe....." 3rd.
3.	Wild Duck....." 8th.	10.	Widgeon....." 6th.
4.	Woodcock....." 20th.	11.	Mountain Finch....." 20th.
5.	Black Scoter....." 25th.	12.	Gray Wagtail....." 25th.
6.	Fieldfare....." 26th.	13.	Jack Snipe....." 30th.
7.	Redwing....." 28th.		

The Swift, (*Cypselus apus*,) was first seen by me this year on Tuesday, May 18th., at Cawood, about twelve miles south of York.—B. R. M., May 24th., 1852.

A Bar-tailed Godwit, (*Limosa rufa*,) in summer plumage was shot at Redcar, by Mr. Robert Dobson, June 11th., 1852.—DANIEL FERGUSON, Redcar.

Late nesting of the Redbreast.--Towards the end of November last, the nest of a Redbreast, (*Erythaca rubecula*,) containing eggs, was discovered by some workmen while pulling down a shed at Gribton, Dumfriesshire, the seat of Francis Maxwell, Esq. The bird was sitting at the time, and when disturbed continued to linger near the spot till her frail fabric was buried in the ruins.--RICHARD RIMMER, Kirkmichael House, February 4th., 1852.

Ring-dove, (*Columba palumbus*,)--I am at a loss to account for the pined and emaciated state of a very large proportion of our Ring-doves this year. I have shot a great many, and think I am not wrong in saying that *one-third* have been in a most deplorable condition, mattering under the wings and thighs, feathers loose, and altogether presenting a diseased appearance. Perhaps you or some of your correspondents will kindly throw some light on this subject.--Idem.

The Bullfinch, (*Pyrrhula vulgaris*,)--Last summer I took a nest of young Bullfinches immediately before they were fully fledged. In a few days they all became sickly, and afterwards died, except one, a hen, which from that moment evinced all the solicitude of a mother towards the rest. When food was put into the cage she immediately conveyed it to them in turn; refusing to taste herself till all were satisfied. She is still in my possession, and has learnt to repeat two or three short sentences with great distinctness.--Idem.

Occurrence of the Hawfinch, (*Loxia coccotraustes*,) in *Warwickshire*.--A fine male specimen of this bird was shot by Bowyer C. B. Cave, Esq., on the 11th. of this month, in his garden at Kenilworth. Another specimen has since been seen in the same locality. I may as well observe that I have seen these birds in considerable numbers in Albania, near the coast during the winter months.--H. J. TORRE, Kenilworth, February 17th., 1852.

Carnivorous propensity of the Barn-door Fowl.--About three weeks since, I caught a large Mouse in a granary, which on my throwing it into the poultry yard, was seized by a Cock. He ran about the yard for two or three minutes, pursued by some of his companions, evidently desirous of snatching the prize from him, and then he proceeded to swallow it head foremost, and succeeded in doing so apparently with little difficulty. On another occasion I threw three mice cut into small pieces to the poultry, which were devoured with avidity by them.--W. M. HEATH, Lytchett Matravers, Dorset, January, 1852.

The Nightingale, (*Philomela lusciniæ*,)--These sweet little songsters have been enlivening our woods for the last fortnight.—J. W. LUKIS, Heacham Hall, Norfolk, April 29th., 1852.

Sky-lark, (*Alauda arvensis*,) *breeding in confinement*.--Amongst all the interesting correspondence in your amusing and instructive publication—"The Naturalist," there appears no record of the Sky-lark having bred in confinement. A few years ago a pair in my possession, which were kept in a cage five feet by three, had four broods in one year, but only three young ones in the first nest arrived at maturity; two broods died on the second and third days, and the eggs in the last nest were all addled. Both birds were exceedingly attentive to their young, the cock being particularly active in keeping the nests clean; and as soon as any of the young died, he took them in his bill and thrust them out between the wires of the cage. Having placed a fine young Lark near the cage, it so aroused the anger and jealousy of the old one, that he killed his mate by pecking her on the head until he had quite destroyed the skull. If other Larks are placed near him, they cease in a short time to sing, being completely cowed by his energy and strong melodious voice. I have a Great-crested Grebe, which was shot by L. Rudd, Esq., on Monday last, in the estuary of the Exe. A pair of Shovelers and a Long-tailed Duck were seen in the same locality by this eminent ornithologist.—W. TOMBS, JUN., Exeter, March 12th., 1852.

Late occurrences of the Landrail, (*Crex pratensis*,)--As I was looking through the Cambridge market on November 7th., 1851, I was rather surprised at seeing a Landrail apparently fresh killed; however on examining it, I found an old wound in the pinion of the wing

which no doubt prevented its migrating. On December 2nd., 1851, a friend of mine shot on his estate, near Plymouth, Devon., a Landrail, which he carefully plucked, but could not find the slightest mark of a wound about it. Do these birds ever winter with us?—R. A. JULIAN, Emmanuel College, Cambridge, April, 1852.

*Occurrence of the Puffin, (Alca arctica).—*A bird of this species was captured in a fen near Ely, on February 18th., 1852. It seems to be a bird of last year. It is now preserved in Mr. Green's collection, of King's College Cambridge.—Idem.

*The Herring Gull, (Larus fuscus).—*Whilst walking on the shore here very lately my attention was attracted by a pair of these birds, which were hovering close overhead. Presently one made a sweep downwards to where a little boy and a very small terrier dog were walking; the bird reached within two or three feet of the dog, which shrunk down and ran off, the boy also raising his arms in evident alarm at the close proximity of the Gull, which I should judge could not be less than five feet from tip to tip of the wings. Had it not been for the boy, I feel persuaded the bird would have made an attack upon the dog. Probably some of your readers may be enabled to say whether my surmises on this head are correct.—J. A. ROBINSON, Wycollar Cottage, Southport, Lancashire, January 12th., 1852.

*Pattern Designs by "Father Frost."—*The main street of Southport, about a mile in length, presented a most singular and beautiful appearance on the morning of Saturday, the 10th. of January. There had been a fall of snow on the morning of the previous day, and this having thawed off, had been followed by rain, which had ceased probably by five or six o'clock in the morning in question; a dry wind and frost had immediately followed, and on reaching Lord-Street, about nine, a.m., I was immediately struck with astonishment at seeing the beautiful crystallizations on the flags. Each of these formed a perfect picture; some having, as it were, wreaths of flowers and foliage; others graceful climbing plants; and others again the most accurate representations of nearly all the fern tribe. Not a few had most elegant Kaleidoscopic patterns on them; and occasionally along the junction of two flags a climbing plant, bearing the appearance of the hop, might be seen and delineated—the black mark between the flags forming the hop-pole. When I tell you that these beautiful pictures were all illuminated by the rays of the rising sun, which too soon destroyed them, the pretty effect may perhaps be judged; but I feel that my attempt to describe the beauty of the scene falls very far short of the reality. I have often seen something similar to this, but never before anything approaching to it in elegance and variety.—Idem.

*The Broad-nosed Sturgeon.—*A fine specimen of this fish, about five feet long, was taken in the Ouse at Cawood, near York, on May 18th., and I was told that it is not uncommonly met with there. It was sold for four shillings.—B. R. M., May 24th., 1852.

*Entomological Hints.—*As the Entomological season is now about its height, perhaps the following communication may prove of service to embryo Entomologists, who, having collected numerous specimens, are anxious to have them neatly and conveniently arranged. When commencing the study myself, I experienced considerable difficulty in this particular. Visions of cabinets with numberless rows of air-tight drawers flitted before me, but on consideration I soon found that such bulky articles were not only quite unsuited to my own present semi-peripatetic life, but, even if settled, that they would take up much room, and involve considerable expense. It was therefore with great pleasure that I was recommended by my friend Mr. A. Adams, R. N., to adopt the plan which I now wish to mention to the younger lovers of this pursuit, namely, placing the specimens in boxes made in the form of books, with folding hinges, on both sides of which the insects may be pinned down. And here I cannot help mentioning the boxes of this description made by Mr. Robert Downie, Union-Street, Barnet, Herts., which are, both for neatness and cheapness, the best I have seen. His name is well known to all Entomologists of any standing, and I can only add my own less extended testimony to the efficacy and portable nature of his works. The sizes generally made are three, namely, eleven inches by eight and a-half inches, thirteen by nine and a-half, and sixteen by twelve; the prices being respectively five, seven, and twelve shillings. The first two are the most useful for small collections, No. 1. being well adapted for Coleoptera, Hymenoptera, and Diptera; and No. 2. for Lepidoptera and Neuroptera. I am certain that any one trying them will be as fully satisfied with them as I was.—W. BALFOUR BAIKIE, M. D., Haslar Hospital, July 8th., 1852.

Hints to Entomologists.—Allow me to suggest that such of the correspondents of "The Naturalist," as may be entomologists, would be bestowing a great boon on some of their younger fellow-workers in this delightful science if they would give the precise localities and times of capture, either by themselves or of their own knowledge of the more rare or local insects. For instance, in the order Lepidoptera, (the one to which I have principally turned my attention,) they might give the places in which *Machaon* is now found. The localities, I dare say, of this insect are becoming yearly more circumscribed; but I have no doubt that it is found in other fens than Wicken—the only one that I have ever seen it in. It would be unnecessary of course to say anything about the very common ones, as *Brassica*, *Urtica*, &c., they being abundant everywhere. I have only mentioned the order Lepidoptera, but I have no doubt that this plan would be equally agreeable to the admirers of the other orders, as *Coleoptera* for instance, and would greatly facilitate exchanges between parties in different parts of the country. Have any of your readers heard of the capture of *Daplicide*, *Dia*, *Hero*, *Ligea*, *Cassiope*, *Chryseis*, *Hippothoe*, or *Virgaurea* within the last few years? if so, when and where?—R. B. P.

The Brimstone Butterfly, (*Gonepteryx rhamni*.) was first seen here on the 16th. of last month.—C. STUBBS, Henley-upon-Thames, February 17th., 1852.

Wood Anemone, (*Anemone nemorosa*.)—In the immediate neighbourhood of Pooley Bridge, Westmorland, I lately noticed a large patch of the common Wood Anemone, growing under a cluster of thorns by the road side, all of which were more or less tinged with purple. Two were especially conspicuous for the depth and richness of their colouring. I am inclined to believe that the excessive heat and drought we have had for the last ten weeks, may have been partly instrumental in changing the colour, not improbably too, assisted by the limey nature of the soil in which they grew.—C. W. ROTHERY, Greta Hall, Keswick, Cumberland, April 29th., 1852.

Proceedings of Societies.

Yorkshire Naturalists' Club, Monthly Meeting, August 4th., 1852.—WILLIAM ANDERSON, Esq., in the chair.

A communication was read from DANIEL FERGUSON, Esq., of Redcar, mentioning the occurrence of two specimens of the Norway Lobster, (*Nephrops Norvegicus*.) which were taken on Saturday last, the 31st. of July, in a herring net, at Redcar; together with a vast multitude of *Turritella terebra*. The Norway Lobster has only before occurred on this coast in the stomachs of cod fish.

DR. MORRIS mentioned that when at Redcar, in June, he had seen, in the possession of T. S. Rudd, Esq., a fine and very perfect specimen of that very rare Star Fish, the Rosy-feather Star, (*Comatula rosacea*.) which Mr. Rudd had procured from the deep-sea lines of one of the fishermen.

MR. T. H. ALLIS exhibited a very fine specimen of that very rare variety of the Common Ermine Moth, which has usually been described as a distinct species, under the name of *Spilosoma radiata*. He also showed another variety, intermediate between this one and the Common Ermine. Both were from Cottingham, near Hull, the only place where they are known to occur, and where the late Mr. Haworth captured the original specimen.

The following new members were proposed and admitted:—H. W. THOMAS, Esq., of Pinchinthorpe House, near Guisbro', and GEORGE DIXON, Esq., of Great Ayton.

The Querist.

I had last year a caterpillar of the Large Egger Moth, which duly went into chrysalis. It did not, however, come out, but remained in 'statu quo' through the winter. It was quite alive this spring, though it subsequently proved to have been infested by an Ichneumon. Is not this an unusual circumstance with this species? I never myself knew of a case of the kind before.—F. O. MORRIS, Nafferton Vicarage, Driffield, July, 1852.

Nuphar lutea.—Frequent in Kennett and Avon Canal, near Bath. *Nymphaea alba*.—Frequent in the Avon, near Bath.—R. WILBRAHAM FALCONER, M. D., June.

LOCAL JOTTINGS.—No. 1.
MONTGOMERY—NORTH WALES.

BY JOHN MATTHEW JONES, ESQ., OF THE MIDDLE TEMPLE.

I CAN safely say that there is no prettier spot in England than our little town of Montgomery, situated on the slope of a hill, and environed on all sides by oak woods, rippling brooks, and "sunny banks whereon the wild thyme grows;" no hour of the day passes by, wherein some fact may not be ascertained in the various departments of that most entertaining of all pursuits—Natural History.

Above the town rises a high ground, known by the name of the "Town Hill." In the southern parts of England it would be called a vast mountain, for from its highest point can be distinctly seen the outskirts of five or six counties. To the north-west, mountains rise over mountains in slow gradation, until the eye rests upon the lofty summits of Plinlimmon and far-famed Cader Idris. On a very fine and clear day, Snowdonia's grand range may be discerned, mingled with the blue haze of the far distant horizon. On the hill immediately over the town, and almost hid from sight by old trees, their trunks grown hoary and covered with moss, stand the last remnants of Montgomery Castle, so well known in days of yore as an almost impregnable fortress. Many a stalwart Welsh chieftain has caroused within those walls, which now, ivy-grown, afford shelter to the noisy Jackdaw.

A little further to the north-west, and only separated from the old Castle by a wide gorge, stands another hill, on which remain the foundations of an extensive encampment, supposed to be the stronghold of the English when they made their several attacks on the Castle in the days of the Commonwealth. On the side of this hill, and nearly opposite the Castle, has been planted, within the last few years, a fir plantation, of about seven or eight acres in extent, which, together with the hill at the top, is called the "Freethe;" the young trees are now about twelve feet high, and have become so intermingled with furze and brambles, that it is perfectly impossible for any human being to force his way into the plantation, for not only would he have all his clothes torn from his back, but he would also run a good chance of getting a bite from an adder, of which there are numbers hereabouts. It is in this little wood, safe from the marauding hand of the bird-nesting boy, that whole multitudes of Thrushes, Blackbirds, Linnets, Finches, and other small birds, make their nests, and rear their young, and if any enthusiastic ornithologist were to sit on the hill just above this wood on a summer's evening, and hear the hundreds of Thrushes and Blackbirds singing their "vesper hymn," his thoughts would immediately become wrapt in delicious reverie, at the magnificence of these sylvan sounds.

About a quarter of a mile to the west of this again, and a little below the Town Hill, there is a large wood of oak and fir, sprinkled with beech, having a good underwood of furze and bramble. In this wood you may

see to advantage the Wood-pigeon, Creeper, Titmouse, and Whitethroat. Creeping stealthily along until you come within sight of the topmost branches of a wide-spreading beech, you may gain a sight of a fine Wood-pigeon, or Quiest, (as it is called hereabouts,) the metallic colours of his breast flashing in the sun as he alternately preens both sides of his person; if you should cause by accident the very smallest stick to crack, he is erect in an instant, and ere another passes, he is off to some other secluded situation.

If I were to go on describing the various woods, hills, dales, brooks, etc., which are adjacent to this pretty place, I am sadly afraid I should be monopolising too great a portion of the interesting pages of "The Naturalist;" I will therefore content myself for the present with the foregoing description of the chief places of resort of the various kinds of birds which frequent this part of North Wales. I have been induced to describe the locality of the said hills and plantations for the good reason, that I now intend from the present time, to accept the office of Ornithological Biographer for this neighbourhood, and in so doing I shall oftentimes have to make mention of the said localities, in connexion with the habits of many of our birds; and I believe it to be the duty of every person situated as I am, in the very midst of a country abounding in nearly all the species of the feathered tribes frequenting the British Isles, (of course excepting sea-birds,) to lay before the public, and those not having an opportunity of visiting such places, a true and faithful account of the goings on of those pretty creatures, whose habits and instinct cannot but manifest to the attentive observer, the wisdom and goodness of the Great Creator.

To begin then with the Raven:—

I notice a pair of these birds frequently during the summer and autumn about the Town Hill, and I sometimes see a third in company. They come I believe from Kerry Hill, a wild barren mountain track, about five miles from hence, where they breed unmolested. These birds are becoming very scarce hereabouts, in consequence of the prejudice existing against them among the farmers, who declare that they frequently destroy the young lambs by picking out their eyes. I have not the slightest doubt they are looking out for such like dainty morsels among the sheep on the Town Hill, when I observe them in that situation. I notice when the pair are in full flight, that one keeps in advance of the other, in line, about twelve yards or so, giving about every eight seconds the loud peculiar croak. On a fine calm day you may hear this croak before the birds actually come within sight.

They breed also on a mountain called "Corndon," about seven miles from here. It was on this mountain, some six or seven years ago, that some boys procured a young Raven, and having brought it to Montgomery, they clipped his wings, and christened him "Rafo." After a year had passed, the bird's wings were allowed to attain their mature plumage, and "Rafo" thinking that exercise was necessary for his health, made two or three cruises per diem in the immediate neighbourhood, always returning to his home for the night.

"Rafo" had a vast liking for human society, and generally alighted wherever he happened to see labourers at work in a field, and when he took it in his head would behave himself very improperly, stealing the bread and cheese of the workmen, which probably lay covered up with a cloth under the hedge. One day a very ludicrous scene occurred; "Rafo" had made rather a longer excursion than usual, and had arrived over a portion of territory he had not visited before. Seeing a team of horses and a plough at work with two attendants, he determined to cast anchor in so favourable a spot, and first of all espying a very white-looking cloth at one end of the field, he made his way to it, to gratify his curiosity; but no sooner had he surveyed the substance, than he began to show evident signs of there being something within suitable to his palate; first pulling about the cloth, and finding he could not get at the dainty morsel of bread and cheese within, he began to deal furious strokes with his tremendous bill, and in a short time accomplished his purpose of scattering the food all over the ground; and not being satisfied with this, his attention was next directed to a "cortril," (a small barrel-shaped vessel, holding about four quarts of beer,) which lay with the cork at the bung exposed to view. "Rafo" gave a fierce dig at the cork, and out it came. One of the labourers now having noticed the bird for the first time, ran to frighten him away, but what was his surprise when he came up to find that "Rafo" would not be so easily disturbed, for when the countryman pelted him with clods, "Rafo" would only move a step or two out of the way and give a loud croak, but at last he took flight and went off.

As soon as the labourers had finished what remained of their meal, they set to work ploughing as before, but had not proceeded far up the field when "Rafo" again made his appearance, keeping within a foot or two of the team as it went on, and do what they would they could not drive him away. At last these two poor superstitious Welshmen, who had never seen so large a bird dressed in such a suspicious colour before, got frightened by his seeming determination of keeping close company; and this fright increased tenfold, when one of them, determined to send a farewell clod at him, happened to hit the poor bird a severe blow, when up got "Rafo," and kept sailing round and round over their heads, croaking most horribly for several minutes, and then off he went, keeping up his dreadful noise until out of sight. When these poor fellows recovered from their fright, one said to the other, "By gum Jack that must be the d——l!"

But alas! poor "Rafo" did not continue his tricks long, for one day a surly farmer, not liking his frequent visits to his farm-yard, gave him a dose of large shot, which ended poor "Rafo's" career. He was certainly a most amusing bird, and, like the generality of his brethren, hated dogs, and kept up a perpetual warfare against those animals; creeping softly behind one of these poor creatures, he would, with the whole force of his body, give him such a dig with his formidable beak, as would send the poor dog howling away with his tail between his legs.

(To be continued.)

NOTES ON THE BIRDS OF IONA.

BY HENRY D. GRAHAM, ESQ.

*(Continued from page 82.)*THE LONG-TAILED ICE DUCK, (*Harelda glacialis*.)

THIS bird comes to Iona in the early part of November, when there appears a small flock of a dozen or so, which takes up its station off the northern coast of the island. These are gradually reinforced during the frosts and severe weather of December and January, by fresh arrivals which are driven in from the sea, and from their more unsheltered haunts, till at last a very great number are assembled in the bay. Towards the end of March this large flock begins to break up into pairs and small parties; many go away; and when the weather keeps fine they make long excursions, and for days the bay is quite deserted—not a Long-tail is to be seen. A change of weather, however, will still bring them back, and a smart gale would assemble a considerable flock of them, and this as late as the second week in April; but after this time you see them no more: thus we have them with us for about four months. They arrive with the first frown of winter, and depart with the earliest blink of summer sun. The Northern Hareld brings ice and snow and storms upon its wings; but as soon as winter, with his tempestuous rage, rolls unwillingly back before the smile of advancing spring, to his Polar dominions, the bird follows in his train; for no creature revels more amidst the gloom and rage and horrors of winter than the Ice Duck.

The change which takes place in the appearance of these birds, during the latter part of their stay, is very striking. In winter you see the flocks of Long-tails far off, twinkling like bright white stars upon the blue waves; but late in spring they become so dark that at a short distance they look very black. Last year they remained so late as the 18th. of April; and I had an excellent opportunity of watching a party of them on that day. I was looking down upon them from a small eminence, with a glass; and sometimes they came almost within reach of shot, so that I was able to examine them nearly as well as if they were actually in my hand. They seemed to be in full summer plumage. The males a fine deep black, something reddish about the wings when the sun caught them; curious little white caps upon their heads, and a patch of white visible behind the thigh. The females were dark brown. I got one of these, though I did not succeed in getting a male. The first time that I saw my old friends in their new costume I did not recognise them, and I was puzzled to know who they were; but at this meeting I was set at ease at once, as they were the first to speak, and then I recognised their voice.

The cry of the Long-tailed Duck is very remarkable, and has obtained for it the Gaelic name of *Lach Bhinn*, or the Musical Duck, the most appropriate name for them; for when their voices are heard in concert—rising and falling

—borne along upon the breeze between the rollings of the surf, the effect is musical, wild, and startling. You look around in vain to discover whence the mysterious strains proceed. "Ah!" you exclaim, "sometimes the fishermen take their bagpipes out with them to cheer their toil while rowing; but no, no boat could live among those terrible breakers, and nothing is in sight all round the murky horizon; surely then I am listening to a band of Tritons and Naiads, whose music thus mingles with the splashing of the waves, to which the intermissive roar of the surf forms a fitting bass!" The united cry of a large flock sounds very like bagpipes at a distance, but the cry of a single bird when heard very near is certainly not so agreeable. On the occasion I just mentioned, I took great pains to learn the note; and the following words are the nearest approach that can be given of it in writing: it articulates them very distinctly, though in a musical, bugle-like tone:—*Our, o, u, ah! our, o, u, ah!* Sometimes the note seems to break down in the middle, and the bird gets no further than *our*, or *ower*, which it runs over several times, but then, as with an effort, the whole cry is completed, loud and clear, and repeated several times, as if in triumph. At this time they were busily feeding, diving in very deep water on a sandy bottom, and calling to one another when they rose to the surface.

I never saw these Ducks come very near the shore; perhaps this is partly owing to the bay which they frequent having shores which they could not approach easily, as there is usually a heavy surf breaking upon them. I have frequently watched them at night, to see if they would come into any of the creeks, but they never did; on the contrary, after dusk they would often leave the bay; the whole of them would fly off simultaneously in the direction of the mainland of Mull, as if they were bound for some well-known feeding-ground. I have often seen them actively feeding in the day-time, though more generally they are floating about at rest or diverting themselves. They are of a very lively and restless disposition, continually rising on the wing, flying round and round in circles, chasing one another, squattering along the surface, half-flying, half-swimming, accompanying all these gambols with their curious cries. When the storms are at their loudest, and the waves running mountains high, then their glee seems to reach its highest pitch, and they appear thoroughly to enjoy the confusion. When watching them on one of these occasions, I had to take shelter under a rock from a dreadful blast accompanied by very heavy snow, which in a moment blotted out the whole landscape; everything was enveloped in a shroud of mist and driving sleet; but from the midst of the intense gloom there arose the triumphant song of these wild creatures, rising above the uproar of the elements; and when the mist *lifted*, I beheld the whole flock careering about the bay as if mad with delight. When feeding over some sea-weed-covered bank, the whole party disappear, and rise again together. I have examined the contents of their stomachs, but found nothing but half-digested sea-weed and great quantities of shell-sand, and pieces of coralline.

I have always found them a very difficult bird to shoot. I never could get a sitting shot at them, though I have tried every method of approaching them—running down upon them under sail, rowing to them, or drifting in a minute punt. I have had most success by coming in upon them from the sea in a small boat. They invariably take wing when you get within from a hundred yards to a quarter of a mile. The moment you hear their music begin loudly to sound, drop your oars, seize your gun; there you see the large flock rising like a black cloud off the water. Now they fly in a long straggling body to windward—there they turn!—here they come—look out! The main flock passes by out of shot; never mind, here's a small party coming straight for us; in a moment they are whistling past the boat with the swiftness of shot; no time for a *poking* aim; bang! hurra!—there's a pair of them. Load again; that shot has broken up the large flock, and small bodies are flying about in all directions; you will soon get another shot: after that they will probably fly out to sea. This is a fortunate day; but I have often had the mortification of seeing them all fly off to sea without obtaining a single shot at them.

From the various plumage of the male, female, winter, summer, young, and adult, there is a wonderful variety exhibited wherever many of these birds are congregated.

Iona, April, 1852.

(To be continued.)

AN ORNITHOLOGICAL RAMBLE NEAR LEEDS.

BY HENRY FERRIS, ESQ.

EVERY naturalist will acknowledge that few places are less favourable to the practical study of ornithology, or any other branch of Natural History, than a large manufacturing town; more especially when one's only time for the said study is before seven o'clock in the morning, and after eight at night. In such a town, swarming with population, where countless tall chimneys day after day vomit forth volumes of smoke, obscuring the sky, and giving birth to whole showers of soot; where the few unfortunate trees and plants are but dirty, miserable distortions; and where the *very snow* is speckled as it falls; in such a situation, and in few more than such, do the works of Nature appear extinguished by those of Man. Well were it, if these baneful effects were confined to the limits of the town itself; but, on the contrary, they extend for miles round; so that to get fairly into the untainted air and green fields of the country, requires at least an hour's walk. But all these difficulties are not entirely insurmountable to an enthusiastic naturalist, who, in summer at least, may, by early rising, now and then contrive to lose himself amongst the scenes he loves.

It was under such circumstances as these that I started, on the twenty-first of fourth month last year, in company with a friend, for an ornithological

ramble in the vicinity of Leeds. It was about four o'clock in the morning when we set out, and although some rain had fallen in the night, it was then bright and clear. We had previously planned visiting a piece of water a few acres in extent at a place called Killinbeck, about three miles along the York road. Thither we accordingly bent our steps, and reached it by sunrise. We saw nothing particular for the first mile or two, but as we neared the pond we met with the Tree Pipit. The sight of this bird always gives me pleasure, more especially when seen for the first time in the spring, as was the case on this occasion. His note is not particularly musical, and its charm lies more in the manner in which it is uttered than in its quality. See him perched on the topmost twig of that old ash! He warbles a few notes to himself, as if to get into the right key, starts from his perch, and, with rapid beats mounts up, up, up, singing joyously. This continues a few seconds; his upward progress becomes slower; he poises a moment in mid air, spreads his wings like a parachute, and gently descends in a graceful curve, singing merrily all the time. As he nears the ground, we perceive his little feet extended to their utmost, as if eager to seize the grassy turf, and very often his song is continued after alighting. They were very abundant on this occasion, although they could not have arrived more than a day or two. Lesser Redpoles, too, were numerous. We saw several of them hopping about amongst the trees in their usual sprightly manner, continually uttering their short note, which always reminds me of the rattling of loose cog-wheels in an old watch.

The Willow Wren, which had arrived on the 18th. of the month, was also plentiful, and is, like all the *Sylviadæ*, perhaps a still greater favorite with me than the Tree Pipit. Though not gaily coloured, its form is remarkably elegant; and although he does not possess great musical powers, his song is very pleasant and lively, and is, moreover, uttered at intervals during the whole of his stay with us. None of the other Warblers, I think, are so willing to take up their abode near large towns. I was considerably surprised one day at seeing a pair of these birds in the trees at Beech Grove Terrace, which is by no means beyond the smoky atmosphere, singing and chasing insects as if perfectly at home.

We had now reached the banks of the pond, where birds were pretty plentiful. Besides the two species just mentioned, Blackbirds, Thrushes, Starlings, Linnets, and Chaffinches, and a variety of others, were singing merrily, or sporting among the trees; while numerous Water Hens were swimming about, or dabbling among the reeds. We had not proceeded far before we found a nest of one of the latter birds, which we were searching for very eagerly. It was placed among some rushes a few yards from the shore, and was only to be obtained by wading. No sooner had I set foot in the water, than the bird, which had probably merely quitted the nest, and slipped beneath the surface on our approach, rose up in great alarm at finding her element invaded, and flew off to the other side of the pond. The nest was

composed of rushes woven together, as they usually are, like basket-work, and contained eight eggs warm as a toast.

At the farther end of the pond we met with several Sedge Reedlings, (*Calamoherpe phragmitis*), which were chattering and singing at a great rate. I never met with them in any other locality near Leeds. We saw nothing else worthy of note at the pond except a large Water Vole, which dived on our approach, and rising at a little distance, struck boldly out across a wide corner, performing a much longer stretch than I ever saw done by one of these quadrupeds before; indeed, as far as my observation goes, it does not seem to be a common practice with them to venture far from shore, though I can give no reason for it.

We now set out on our return by a different way, and stopped awhile on a railway bridge, to watch a number of Bank Swallows, which were glancing up and down in the cutting below. We had not seen any previously, but, as they were numerous, they had probably arrived some time. After this, we met with nothing worth mentioning, and hastened home from a ramble which I shall ever remember with pleasure—a pleasure which those on whom nature has bestowed a passionate love for her works, and whom necessity compels to live cooped up in the crowded city, will easily comprehend.

Kingsdown, Bristol, 8 mo: 12th., 1852.

ALLEGED FEROCITY OF THE MISSEL THRUSH, (*TURDUS VISCIVORUS*.)

BY W. F. W. B.

THE description of the Missel Thrush in Mr. Macgillivray's "History of British Birds," contains a remarkable communication from his very assiduous and most delightful correspondent, Mr. Weir; in which that gentleman mentions in detail, several instances of the ferocious propensity of this bird to prey upon the eggs and young of others; not sparing even the grown-up family of his cousin the Song Thrush, (*T. musicus*.)

This unfavourable "trait," so foreign to our established ideas of Thrushes, has not, as far as I can ascertain, been mentioned, or even alluded to, by any other ornithologist or writer on Natural History, either in this country or on the Continent; but I think no one who has read the numerous and interesting contributions with which Mr. Weir has enriched Mr. Macgillivray's great work, can doubt the accuracy of his statements. His regard for truth is only equalled by the perseverance with which he seeks for it.

At the same time, if this be an habitual feature in the Missel Thrush's character generally, and not the result of accidental or temporary causes, or the cruel practice of a particularly savage individual, it would be in the power of many ornithologists living in the country, to bring forward similar facts from their own observation; and it is to be hoped that some will give

attention to the subject next spring; and I shall look forward with interest for Mr. Morris's description of this bird, in his excellent "History" now in progress.

I myself can corroborate one part of Mr. Weir's accusation; that, namely, which relates to the egg stealing.

In the month of May or June, 1848, whilst "zoologizing" in Black Park, Bucks., (a place dear to London Entomologists,) in company with my late lamented friend, H. Fullar Farr, Esq., I observed a bird caught in a trap, which the gamekeeper had fastened to the stem of a fir tree, about five feet from the ground. On a nearer inspection I found that the trap was a common iron rat-trap, the handle of which had been tied fast to the tree by a string above and below, so that it stood horizontally level; and it had been baited with a small bird's egg. The prisoner was a Missel Thrush.

This, at the time, created much surprise in my mind, and more than once have I thought of it since. The only explanation which offered itself was, that the Thrush had been *accidentally* caught in a trap set for more notorious plunderers, the shrieking Jay, or chattering Pie, who find in every gamekeeper a sworn and implacable foe. But the recent perusal of Mr. Weir's numerous authenticated acts of rapine and murder against Mr. Viscivorous, have convinced me that he was, in this instance, most justly punished for his egg-stealing propensities.

In the hope that these remarks may be the means of bringing further communications on the subject, I send them to your Magazine.

London, August 14th., 1852.

THE CHOUGH.

BY E. K. B.

MR. KNOX, in his very delightful book, "Game Birds and Wild Fowl," attributes the disappearance of the Chough from many parts of our coast to the superior strength of the Jackdaw, whose hard conical beak is more than a match for the graceful and slender bill of the Red-legged Crow, and states that "some years ago he found great numbers of Choughs on the precipices of Caldy Island, off the coast of Pembrokeshire, and procured several specimens; but observed no Jackdaw, although he saw two or three pairs of Ravens, who from time immemorial had lived on excellent terms with the Red-legged Crow;" but he had been informed the Daw had since made its appearance, in consequence of which he fears the doom of the Chough is sealed.

Now with due deference and great respect for the high authority of Mr. Knox on the subject of ornithology, I do not think the disappearance of the Chough can be attributed to the persecution of the Daw. In the first place I would ask, how it is that these two birds, which have ever lived together, still continue to do so in considerable numbers in various parts, both of

England, Wales, Scotland, and Ireland, if a war of extermination is, (and of course ever has been,) carried on by the stronger against the weaker, as is conceived to be the case? for, unlike the Red-legged Partridge, the Grey Rat, and the Colchican Pheasant, instanced by Mr. Knox, which, since their introduction into this country, have been successfully carrying on the work of extermination against their respective congeneric predecessors, the Jackdaw is as truly a British Bird as the Chough.

I would next ask whether the Chough and Daw have been seen to disagree? I apprehend they have not, or if so, but rarely. I have had many opportunities of watching these birds on the Pembrokeshire coast, and particularly on Caldy Island; for, notwithstanding that Mr. Knox saw no Jackdaws on his visit to that place, I can assure him they have lived there together with the Choughs in considerable quantities time out of mind, and still continue to do so without any diminution in their numbers, and I can only say I have never seen them quarrel. A friend of mine, who lives on another and far more wild and romantic Island off the same coast, where the Choughs and Jackdaws breed, and who has paid considerable attention to the habits of the birds which frequent it, writes to me confirming the fact that these two birds do not disagree.

I was unwilling to be the first to contradict so great an ornithologist as Mr. Knox, and should probably never have offered these remarks to the readers of "The Naturalist," had it not been for a very interesting paper by Henry D. Graham, Esq., at page 81, wherein he states that in the Island of Iona, the Choughs "remain on a friendly footing with the Jackdaws, associating with them in their feeding excursions, and sometimes accompanying them home." Being able to confirm the statement of that gentleman with regard to the friendly relations subsisting between the two birds in question, I venture to obtrude these remarks with that view, and will conclude them with the following brief notice on the habits of the Chough, as observed on the Pembrokeshire coast and adjacent islands:—

This lively and beautiful bird remains on the coast throughout the year, ornamenting and enlivening the cliffs by its presence, when the migratory sea-fowl, which resort thither during the breeding-season in countless numbers, have taken their departure. It chooses for its nest, holes in the most inaccessible parts of the cliff, generally far out of the reach of the most daring fowler, so that although they breed here in considerable numbers, their eggs are rarely obtained, and the possession of specimens is therefore a desideratum with the collector. Choughs are not gregarious, and remain for the most part in pairs until the autumn, when six or seven, (two old birds and four or five young ones forming one family) are seen together. They never mix promiscuously with the Jackdaws, or indeed any other bird, and when in the corn-fields the Choughs will generally be seen in one corner and the Daws in another. Though at times a shy and wary bird, like the rest of its race, it will frequently approach the gunner with considerable boldness, too often

to its own destruction; and when one of a pair falls a victim to the murderous gun, its partner will manifest the greatest distress—dashing about, uttering notes apparently of mingled grief and defiance, swooping down so as sometimes almost to touch its dead companion, as though to convince itself of the reality of its death, wheeling round and again returning incredulous, till at length satisfied that no hope is left, it flies off to its lonely abode to mourn its loss in solitude.

May 28th., 1852.

THE NATURALIST, VOL. 2. PAGE 2.

THE MOLE.

THAT the Mole is without eyes or sight, I deny.

That any individual specimens, on the examination of which Mr. Smee grounds his assertion may have been eyeless, I do not deny, having no proofs; but that Moles in general are blind I deny, and that flatly.

In the first place I do not understand why Nature, beneficent and thoughtful, has given the animal eyes, as she *has* done, if those eyes are to be of no use. Virgil talks of blind Moles,—“*Oculis capti fodere cubilia TALPÆ;*” and Shakspeare also, “That the blind Mole, etc., etc.: but to poets we allow licenses; to naturalists, none. Virgil was a good farmer, and understood bees; but he seems to have known little of the Mole more than that it sometimes disfigured his lawn, and turned up Mole-hills in his meadows, to the detriment of the scythe’s edge at mowing time. Shakspeare too was a splendid fellow—a heart of gold—and as long as he kept himself to the description of human eyes, he was correct. He tells us of the violets being “sweeter than the lids of Juno’s eyes;” gives the old King Hamlet “An eye like Mars;” and to the excellent Desdemona “An inviting eye.” “What an eye she has!” says the devil Iago. So far, good: but let us yield him his prerogative as poet in the matter of the Mole’s blindness.

The eyes of the Mole, which are dark, minute, deeply set in the fur, and as brilliant as diamonds, answer fully the ends for which they were created. Taking into consideration his subterranean mode of living, it is evident that ordinary eyes would be obnoxious to inconveniences arising from earthy particles disturbed in his travelling operations. Therefore he has extra-ordinary eyes, set well back in the fur, and thus beautifully guarded from falling particles likely to enter the eye.

The senses of hearing and touch are exceedingly keen and well defined in the Mole. I have proved both in wild nature on several occasions.

I will allow want of eyes to the Mole examined by Mr. Smee, because I have no reason to doubt his statements; but that *all* Moles lack eyes or eyesight, I utterly scout and deny. Also, I will believe with Mr. Davies “that the range of vision in the Mole is very limited.” His habits do not require a very extended range of sight: of what use would such a faculty be to him?

When burrowing, it would be entirely in abeyance. And supposing his run made, how would his being far-sighted advantage him, seeing that every now and then he got off at an obtuse angle?—unless indeed he has the gift of looking round corners. What would Waterton say to this supposed eyeless state of the Mole; or that having eyes or “tubercles,” they are of no use to it! One may just as well argue with him that the dreadful rows of teeth that garnished the jaws of the leviathan, which he so bravely bestrode, were there not for securing its prey, but as a mere superfluous ornament. Do not let us believe any such improbabilities.

THE NATURALIST, VOL. 2. PAGE 20.

THE JACKDAW.

It seems to me that Mr. Lukis is attempting to corroborate an already corroborated fact, when he tells us that Jackdaws build in the holes of trees. Birds differ in nidification and manners in different neighbourhoods: wisely they conform themselves to those places and circumstances in which they find themselves.

In this country I find Daws build in three distinct localities:—In the cathedral, and in the country churches; on sea-side and other cliffs; and in hollows of the “tall ancestral trees,” which grace this beautiful country. The sea-side cliffs, from Dawlish downwards to Watcombe, Petch-tor, Babbicombe, Black-rock, Hope’s Nose, and Berry Head, are all inhabited by colonies of Daws in the breeding-season.

The grand old trees in Ugbrook Park, belonging to Lord Clifford, are favourite and frequent nesting-places for the Daws; also the mighty time-honoured sky-piercing chestnuts, and others, in Peamore Park, the seat of Samuel Trehawk Kekewich, Esq.—a noble gentleman withal; one who walks the land, garlanded, as to his brow, with the blessings of all good men; to whom also I am indebted for much ornithological and floral love, inasmuch as his proverbial courtesousness and urbanity opened the gates of his beautiful park to me studying Nature.

Many a pretty lesson have I learned there: sometimes roaming at my own sweet will, fancy-led; and daintily attended with many a little laughing spirit that lay lurking in the flower’s dewy bell. Sometimes too, stretching along the branches of the noblest beech in Devon, “*Silvæ filia nobilis*,” just merely enjoying the blessedness of existence. “Wasting my strength in strenuous idleness,” and listening to the manifold sounds of woodland music—

“Move along these shades
In gentleness of heart: with gentle hand
Touch: for THERE IS A SPIRIT IN THE WOODS.”

In the clefts of Dewerstone Rock, one of

“The mighty tors of the dread wilderness”

of Dartmoor, the Daws breed annually, and the church-tower of Shaugh is not distant half-a-mile.

I have no reason for doubting that Daws have built in the hollows of trees ever since, according to the Roman ornithologist, Ovid, that money-loving traitress Sithonis was metamorphosed into this same bird. Ovid says,

"Mutata est in avem quæ nunc quoque diligit aurum
Nigra pedem, nigris velata MONEDULA pennis."

I kept one once, the merriest, most mischievous pet that was ever hatched; the veriest vagabond thief that ever appropriated what did not belong to him; and a brave defender too of what he had stolen; until at last he himself was stolen, whether indeed also by himself, or by another, I am not exactly prepared to say.

THE NATURALIST, VOL. 2. PAGE 21.

THE TOAD.

EIGHTEEN centuries ago Toads were found in holes: "Inventus que cavis BUFO," says Virgil, in his first Georgick. We are just as far from comprehending the natural history of these recluses as was the Ausonian farmer.

THE NATURALIST, VOL. 2., PAGE 36.

NESTING OF THE SPARROW.

Is J. D. of Edinburgh quite sure that the Sparrows which built in the larches and beech trees at Ashes, near Culross, Perthshire, were *bonâ fide Passeres domestici*? I am not wishful to impugn the ornithological science of J. D.: by no means. But *Passeres arborei* are very similar in personal appearance, in material of nest, and in egg, to the former, and are frequently mistaken for them. I am fully aware that the House Sparrow *does* build in trees; and, true to his instincts, he there makes a domed nest; thus deluding his young with the idea that they have been as much reared under cover as if they had been hatched under the eaves of a cottage, or in the convenient niches of the flowering capital that curves over the shaft of the Corinthian pillar.

I have spoken with open-air naturalists, who deny the existence of *Passer arboreus*; and who assert that the Sparrow that builds under eaves and in holes is analagous with the bird that builds a domed nest in trees.

THE NATURALIST, VOL. 2, PAGE 109.

DO THE HAWK TRIBE DRINK?

As far as my experience goes—no. I believe that flesh-eating birds seldom or never drink. I have kept various birds of prey at various times, but never once saw either Falcon or Hawk drink water. I kept two Kestrels in a room, and they never saw any water. They were very docile, and would come and perch on my wrist at my whistle. I fed them with flesh and shell-snails.

I took a Buzzard Hawk from the top of a mighty ash tree in Sir Arthur Aston's Park, in Cheshire. She was indeed a magnificent bird. She had an eye like an Immortal, and withal as gentle as Night. I entertained great hopes of flying her. She never touched water whilst in my possession; but

used to quench her thirst with the hot blood of the slain. It was partly for this reason that I used to feed her with birds and mice *newly killed*, so that she might enjoy, as in nature, the luxury of warm blood. She one day bade me good-bye: it was grand to see her rush upwards on her sky-cleaving wing.

—————"O for a falconer's voice!
To lure that tassel gentle back again."

First and last, I have reared seven Ravens; one, which had devilry enough in him for a whole generation of Ravens, was very fond of water, and drank frequently: there was a deal of strange weird mystery about this bird—something beyond mere instinct. The others were never supplied with water. I have had Gulls too, which never would get afloat, although they had every appliance thereto; nor did I ever see them drink. Finally, they were kept without water.

Any one who may have kept a bird of prey will remember that the alvine secretions have been principally a white lime-like substance; this answers to the aqueous deposit of quadrupeds. From the abundance of this same substance I seem to argue that the juices of flesh or fish supply sufficient moisture to the system without the aid of water. Is it not so?

HENRY SEYMOUR DANIELL.

Torquay, Devon, June 14th., 1852.

NOTES ON SPRING FLOWERS, ETC.

BY S. HANNANORD, ESQ., JUN.

"Was it a dream, or have I seen
Violets white and blue?
And golden flowers on mosses green,
Bright wet with glistening dew?"

SUMNER JONES.

It is indeed no dream—"For lo, the winter is past, the rain is over and gone; the flowers appear on the earth, the time of the singing of birds is come," and the first few spring flowers are peeping forth in our hedge-rows, gladdening the heart of the botanist, despite the bleak winds and cold showers which still linger with us, but it is

"Right—that the young bride of the earth
Be not too soon caressed!"

The trees are already putting forth their buds; the fields are being covered with young shoots of grass, amongst which

"Daisies vermeil rimm'd and white,
Hide in deep herbage."

ENDYMION.

The hedges are gradually clothing themselves with their bright garb, and

the Redbreast too has forsaken the habitations of man, and returned again to its old haunts, to welcome the approach of spring. How cheering is the rich sweet whistle of the Song Thrush, (*Turdus musicus*), "with his note so true;" and the loud, mellow song of the Blackbird, (*Turdus merula*), which is said to be sweeter during the continuance of a spring shower than at any other time; of which Christopher North writes so eloquently, "There he flits along upon a strong wing, with his yellow bill visible in distance, and disappears in the silent wood: not long silent. It is a spring day in our imagination; his clay-wall nest holds his mate at the foot of the Silver-fir, and he is now perched on its pinnacle. That thrilling hymn will go vibrating down the stem till it reaches her brooding breast. The whole vernal air is filled with the murmur and the glitter of insects; but the Blackbird's song is over all other symptoms of love and life, and seems to call upon the leaves to unfold into happiness."

By the end of March young broods of the Thrush and the Blackbird may be found. The nest of the former is generally placed in a thick hedge or tall bush, formed externally of twigs, moss, and frequently grass, closely interwoven; the inside is composed of cowdung and decayed wood, cemented by a saliva. I have frequently seen clay used for the interior of the nest, although it is doubted by Mr. Rennie. The eggs are generally four, oftentimes five in number; light blue, with a few small black spots at the large end. Keats speaks of

"Yonder Thrush
Schooling its half-fledged little ones to brush
About the dewy forest."

And again of her song,—

"Close my happy eyes
Amid the Thrush's song"

The nest of the Blackbird may be found in a thick bush, and is composed externally of twigs, fibrous roots, and grass or moss, lined on the inside with mud and dry grass; the eggs are four or five in number, bluish green, with reddish brown dottings. I took last spring, from the nest of this bird, two eggs, one of the general length—about one inch and two lines by ten lines in breadth, but quite sharp at one end; the other was much shorter and broader, and quite round at each end, more resembling that of a Bantam. This bird is very easily alarmed, and utters a sharp chattering cry as it flies. Walter Scott bears testimony to its sweet song—

"How blithe the Blackbird's lay."

MARMION.

Early in February the Dandelion, (*Leontodon taraxacum*), may be found in flower, taking its generic name from *Leon*—a lion, and *odous*—a tooth, from the tooth-like margin of its leaves. The root is valuable on account of its medicinal properties; and everywhere in the hedges and woods, and grassy banks, the Primrose blossoms (*Primula vulgaris*), appear. It is too well known to need description; the flowers grow on long stalks, which are joined

at the bottom. It is called *Primula* from the Latin *Primus*—first, from its early appearance; and in France *Primevère*. It appears to be a great favourite with our poets as the herald of spring. To commence with Clare—

“How sweet thy modest unaffected pride
Glow on the sunny bank and wood’s warm side.”

And our Devonshire poet too, Carrington—

“Amid the sunny luxury of grass
Are tufts of pale-eyed Primroses, entwin’d
With many a bright-hued flower, and shrub that scents
The all voluptuous air.”

And very beautiful are the following by Hartley Coleridge, which reminds one of the line in Milton’s “*Lycidas*”—

“The rathe Primrose that forsaken dies.”

“In dewy glades
The peering Primrose, like sudden gladness,
Gleams on the soul, yet unregarded fades;
The joy is ours, but all its own the sadness.”

A later poet says

“The solitary Primrose hath come back
To haunt the green nooks of her happy spring.”

Who does not remember the heart-felt joy when he has seen the first spring Violet, and how it has been treasured? The Sweet Violet, (*Viola odorata*), may easily be distinguished from the Dog Violet, (*V. canina*), which has no perfume, by the obtuse leaves of the calyx: those of the latter tapering to a sharp point. The Hairy Violet, (*V. hirta*), which I have never met with in this neighbourhood, also has blunt calyx leaves, but the root is not creeping like that of *V. odorata*, and the flower stalks as well as the leaves are covered with hairs. The flowers of the Sweet Violet are recommended as a Cosmetic by an old herbalist in the following words:—“Anoint thy face with goat’s milk in which Violets have been infused, and there is not a young prince on the earth who will not be charmed with thy beauty.” Our immortal poet, who thoroughly appreciated all Nature’s beauties, speaks of

“Violets dim,
But sweeter than the lids of Juno’s eyes
Or Cytherea’s breath.”

WINTER’S TALE.

And Barry Cornwall of

“Violets, whose looks are like the skies.”

About the 18th. of February, the Common Daffodil, (*Narcissus Pseudonarcissus*), may be found on a hedge-bank near Colt, by the banks of the Dart, &c. The flowers are solitary, and formed of six egg-shaped petals, yellowish, the nectary deep yellow and bell-shaped. Its name is derived from Narcissus, who is said to have been changed into this plant, or more probably perhaps from *narks*—stupor, in allusion to the powerful and injurious smell of the flowers.

“In spite of all
Some shape of beauty moves away the pall
From our dark spirits.

Such are Daffodils,
With the green world they live in.”

ENDYMION.

The Lesser Celandine, (*Ranunculus ficaria*, or *Ficaria verna*.) is now in flower, with its pretty shining, golden petals—nine in number; and the Strawberry-leaved Cinquefoil, (*Potentilla fragariastrum*.) is abundant in the hedges. This latter plant is very similar to the Wood Strawberry, (*F. vesca*.) which flowers later in the season, but by a little careful examination may easily be distinguished. The fruit is small, dry, and hairy; whilst that of the Wood Strawberry is fleshy. In the former the calyx leaves appear between each petal. On a hedge in Folly Copse, near the Dart, the Lesser Periwinkle is just coming into bloom, covering the bank with its beautiful pale blue flowers. It grows quite wild here, and at Bunkers Hill, Bow Hill, and Haybertonford, in this neighbourhood. A white variety is also occasionally found: name supposed to be derived from *Vincio*—to bind.

March 5th.—The following are in flower at this date:—Perennial, or Dog’s Mercury, (*Mercurialis perennis*;) *Lamium purpureum*, or Red Dead Nettle; Coltsfoot, (*Tussilago farfara*.) the flowers of which appear before the leaves; Common Stitchwort, (*Stellaria media*;) the Ivy-leaved Speedwell, (*Veronica hederifolia*;) Hairy Wall Cress, (*Arabis hirsuta*;) and Marsh Marigold, (*Caltha palustris*.)

March 20th.—The woods and banks of streams are covered with the beautiful white petals of the Wood Anemone, or Windflower, as it is called in some parts, (*Anemone nemorosa*.) tinged underneath with purple. It is said to be poisonous to cattle. It derives its name from *Anemos*—the wind, in allusion to the beautiful appearance their feathery leaves produce when waved by the wind.

“The coy Anemone, that ne’er uncloses
Her lips until they’re blown on by the wind.”

On more careful examination of the specimen gathered on the banks of the Dart, recorded at page 199, vol. i. of “The Naturalist,” which I at first supposed to be *A. pulsatilla*, appears to be only a red variety of *A. nemorosa*. I can merely add a few more plants which appear between this and the end of March. The Black Thorn, (*Prunus spinosa*.) Cuckoo flower, (*Cardamine pratensis*, Shepherd’s Purse, (*Thlaspi Bursa pastoris*, Ground Ivy, (*Glechoma hederacea*.) Early Purple Ochis, (*Orchis mascula*.) Red Champion, (*Lychnis dioica*, *Stellaria holostea*, or Great Stitchwort, Early Field Scorpion Grass, (*Myosotis collina*.) Wood Spurge, (*Euphorbia amygdaloides*.) White Dead Nettle, (*Lamium album*.) Wood Strawberry, (*Fragaria vesca*.) Tuberous Moschatel, (*Adoxa moschatellina*.) Golden Saxifrage, (*Chrysosplenium oppositifolium*.) and Wall Flower, (*Cheiranthus Cheiri*.)

"The rude stone fence, with Wall-flowers gay,
To me more pleasure yields
Than all the pomp imperial domes display."

SCOTT.

The Woodpecker, (*Picus viridis*,) may be heard about the middle of the month, and the Bloody-nosed Beetle, (*Timarcha tenebricosa*,) found in great numbers.

Totnes, Devon, 1852.

SOME ACCOUNT OF THE DIURNAL LEPIDOPTERA OF SUSSEX.

BY MISS MARIA E. CATLOW.

As it is always interesting to the entomologist to know the localities frequented by his beautiful favourites, I intend giving in the following paper a brief account of the Diurnal Lepidoptera which came under my own observation, when living in the extreme west of Sussex—three miles from Midhurst, and about two from the range of hills forming part of the South Downs. The neighbourhood is very lovely, the face of the country extremely varied, the climate mild, so that the collector of "winged gems" has many advantages in the prosecution of his favourite pursuit. Extensive and breezy commons, rocky sheltered lanes, meadows and gardens, by turns invite him forth to ensnare his favourite game, without any risk of sharing the poacher's fate; or even of being classed, as he might formerly have been, with the "very eccentric." He would probably not capture all the species named in a single excursion, nor even in a single season; but if he will accompany me in the spirit, I can at least point out the localities in which I had the pleasure of finding them.

The magnificent *Papilio Machaon*, (Swallow-tail,) I never had the good fortune to take myself, but one specimen was caught on a wood-stack by a neighbour's coachman, and was added to his collection; so that I can vouch for that beautiful insect being found in this locality.

Gonepteryx Rhamni, (Brimstone Butterfly,) may be seen any day in May, and again during the autumn, flitting, like an animated primrose, up and down the common; or even early in March on the skirts of the pretty sheltered woods so common in this neighbourhood; looking, at that early season, like a fairy promise of the coming spring, and often, like other promisers, proving but a gay deceiver; yet it is ever welcome, for though our variable clime deceives us day by day, always breaking its fairest vows, we are quite ready to be deceived again.

Colias Edusa, (Clouded Yellow,) is not very common here; indeed it prefers the vicinity of the sea: whether a distant sight of that element be sufficient for its happiness I know not, but the only specimen I found, was on the beautiful Downs, just where a magnificent prospect of the Isle of Wight, Portsmouth, Chichester, and the blue expanse of ocean greets the eye.

But let us for the present ramble in the gardens belonging to that old mansion, which, though bearing the impress of age, derives all its beauty from its situation and pretty grounds. In the sunny kitchen-gardens, sloping to the south, may be seen in April and May, and indeed through the spring and summer, for there are two broods of nearly all the species, various kinds of White Butterflies, which, in the larva state, do so much injury to vegetables, and are looked upon with such ill-will by the gardener. *Pontia Brassicæ*, (Cabbage Butterfly,) the largest of the genus; *P. Rapæ*, (Small White,) very similar except in size; *P. Metra*, (Howard's White,) a delicate looking little creature, almost entirely white, tinged with yellow; and *P. Sabellicæ*, (Dusky-veined White,) considered only a variety of *P. Napi*, (Green-veined White,) a very common species. All these I have constantly found in this garden, but the prettiest of the genus, the little *Pontia cardamines*, (Orange-tip,) prefers the shady paths in that pretty wood, evincing the good taste you would expect from so lovely a creature. Early in April, during the transient gleams of sunshine, I have watched with delight this little fairy, which looks as though he had caught a ray of sunshine on the tip of his wings, so brilliant are the orange markings in the male butterfly; while the demure little female is satisfied with having her pretty wings powdered with yellow and green. How like gems they look, glancing under the tall tress; but a shower is coming on, and they disappear. When it is over, we will extend our ramble through Love-lane—where is there a neighbourhood without a Love-lane? and this is supremely worthy of that romantic name.

On one side of the pretty winding path are the plantations belonging to ——— Hall; on the other sloping meadows with a small stream running through them, bordered with sweet flowers, and backed by the ever-varying Downs, alternately sunshine and shade, as the shadow of a passing cloud courses rapidly over them. In this lane I caught, one day in May, the rather rare insect *Leucophasia Sinapis*, (Wood White,) the smallest of our White Butterflies, and not very unlike a Dragon-fly, with its slender wings and semi-transparent appearance; and in the park field just above, two specimens of *Pieris Cratægi*, (Black-veined White,) or Hawthorn Butterfly, by no means a common insect.

Near the end of the lane, in a narrow grassy path winding through the plantation, the pretty *Hipparchia Hyperanthus*, (Ringlet Butterfly,) might be seen abundantly during one summer, and I captured several specimens; but that part of the copse was cut down, and though the underwood soon grew again, the pretty Ringlets had quite disappeared, and I never saw them afterwards in that locality. Here too, I found the beautiful *Melitæa Euphrosyne*, (Pearl-bordered Fritillary,) a most appropriate place too, for the violet, the sweet food of the caterpillar of this species, is abundant in Love-lane during the season. *Argynnis Paphia*, (Silver-washed Fritillary,) and *Hipparchia ægeria*, (Speckled Wood,) are also inhabitants of this pretty and secluded locality; the former appearing about July, the latter at many different seasons.

We will return through the flower-gardens of —— Hall, where, between the fine trees, we shall enjoy a delightful view of the country and the Downs, and I will point out to you where I have taken *Vanessa Polychloros*, (Large Tortoise-shell,) *V. urticae*, (Small Tortoise-shell,) *V. Io*, (Peacock Butterfly,) and the beautiful *Cynthia Cardui*, (Painted Lady;) also *Thecla Rubi*, (Green Hair-streak,) which was in tolerable profusion one year, seeming to confine itself however, to a single spot—a high laurel hedge facing the south—a very warm and sunny locality for this delicate-looking species.

Another ramble, taken across the common, with its widely-extended views, taking in the range of Downs from the neighbourhood of Brighton to Up Park, on the borders of Hampshire, will introduce us at different seasons to *Hipparchia Tithonus*, (Large Heath,) *H. Pamphilus*, (Small Heath,) *Polyommatus Adonis*, (Clifden Blue,) *P. Alexis*, (Common Blue,) both lovely little creatures; the delicate blue of the upper surface contrasting beautifully with the pencilled markings underneath. We shall also find another pretty species, *Lycaena Phœas*, (Common Copper,) and my favourite *Hipparchia Semele*, (the Grayling,) a favourite I think, from the locality in which I always found it, as well as from its own beauty. In one part of the common is a deep sandy lane, with rocks of sandstone varying from twenty to perhaps fifty feet in height, on each side. From the summit of these rocks is a lovely view, comprising wood and meadow, with one or two small villages, backed by the Downs, at whose base may be seen some of the primitive Sussex churches, and old-fashioned farms; while the winding roads up the hills, which may be traced from this distance, look very tempting to the lovers of extensive views. On these rocks we were sure to find the Grayling in July; and this favourite locality, both of the butterfly and its admirers, was soon well-known as “the Grayling rocks.”

Two other species of *Hipparchia*—*H. Megæra*, (Wall Butterfly,) and *H. Janira*, (Meadow Brown,) are very common in this neighbourhood. We must make two expeditions, beyond walking distance, to complete the list of my Sussex collection of Lepidoptera; one is to the beautiful Downs, by the little village of Trayford; whence a steep winding road will conduct us to the summit. Here the entomologist will forget his pursuit for a time, to revel in the beauty so profusely spread before him. Looking southward beyond the undulating surface of the hills, which are here varied by extensive woods and noble beech trees, may be seen

“The sea! the sea! the open sea!
The ever fresh, the ever free!”

on one side; Portsmouth and its shipping on the other; Chichester, with its tall cathedral spire, and in the distance, more interesting than all, to those who have seen the beautiful undercliff and other picturesque localities, the Isle of Wight; the whole extent of which is visible, like “a gem set in the silver sea.” To the north, Sussex is spread out like a map before the eye, with towns, villages, and country seats, nestling in its well-wooded districts;

the spire of Petworth church being visible at the distance of many miles. The blue hills of Surrey and Hampshire bound the view on this side.

Now if we put our Butterfly-nets in requisition, we shall probably capture *Argynnis Aglaia*, (Dark green Fritillary,) which seems to rejoice in these thymy pastures as greatly as the black-faced South-down sheep we see in such numbers. Other species may be seen, but they have been mentioned before; and I once had the pleasure of capturing *Hipparchia Galathea*, (Marbled White,) which was then new to me, and led me a very long chase in my eagerness to secure the prize.

Argynnis Adippe, (High-brown Fritillary,) and the beautiful exotic-looking *Vanessa Atalanta*, (Red Admiral,) I found in profusion in the woods overhanging a small lake, in the grounds belonging to Sir Charles H. The extreme beauty of this locality being equally tempting to the poet, the lover of nature, the botanist and the entomologist, frequently allured our wandering feet; and a variety of tastes were sure to be gratified by this charming excursion.

I do not of course give this as a perfect list of the Diurnal Lepidoptera to be found in Sussex; for stronger and more able collectors might probably discover other species. I merely mention faithfully those which came under my own observation, during two or three seasons of tolerably persevering research.

Beaconsfield, 1852.

Miscellaneous Notices.

Egyptian Goose, (Anser Egyptiacus).—"A fine specimen of the Egyptian Goose was shot at Butley, near Woodbridge, a few days ago, (April 3rd., 1852,) and is now in the possession of Mr. William Cook, Woodbridge. We do not recollect an instance of this rare bird being found so far south, and the lateness of the season makes its appearance here still more singular."—*IPSWICH JOURNAL*, April 3rd., 1852.

By a reference to Bewick's British Birds, I find that this bird must have been rather a rare visitant to the northern parts of our island, for he says that neither the author nor his correspondents were able to procure a specimen of this species, for the purpose of making a drawing.—E. C. NUNN.

Curious Fact.—Mr. Munro, Zinc-worker, of Bury, St. Edmunds, (April, 1852,) had a brood of ten chickens hatched from nine eggs, one of which was double-yolked. Are any of your numerous readers aware that such a fact has been before noticed?—Idem.

Swallows.—A pair of Swallows were seen skimming over the mill-pool of the town of Sudbury, as early as Friday, the 9th. of April. Their first appearance at Thrandestone, near Diss, a village thirty miles north of Sudbury, was not observed till Thursday, the 24th. of April. The House Martin visited the same village on the 26th. The Cuckoo on the 24th.; but did not welcome us with his well-known note till the morning of the 27th. The Wryneck came on the 7th., the Yellow Wagtail, April 5th. In speaking of the migration of Swallows, White, in his "History of Selborne," names April 11th. as the earliest period he has observed for the arrival of these birds in 1770. On an average of years they make their appearance about the 13th. of April, though an occasional straggler has been seen in March.—Idem.

The Little Bustard, (Otis tetrax).—Being on a visit to my friend, Mr. Baker, Writtle, near Chelmsford, a short time ago, I saw in his collection of rare birds, a fine specimen of the Little Bustard, which was shot on his farm some few years since. This bird is but rarely, if ever, seen in this country at the present day.—Idem.

Curious habit of the Robin, (*Erythaca rubecula*).--I last year noticed what appeared to me something very remarkable in the nidification of the Robin, and doubtless it will prove as interesting to many of your readers. Some time in the end of April, I discovered a Robin's nest hidden in some ivy which runs over an old wooden fence round our garden; at that time it contained three young ones, which all went safely off, though the nest was constantly visited by some of our family. Some three weeks after on looking at the nest again I was surprised to find that it had been repaired, and that the old one was again sitting on seven eggs, five of which proved good, and five young birds flew in due course. From the singular circumstance of the old bird having used the same nest for two broods, we became very much interested in her affairs, and visited and fed her constantly. You may judge of my surprise on going to the nest about a fortnight after the second brood had flown, to find that the nest had been again repaired, and that it contained a third sitting of eggs, I think five in number, three of which were hatched, and the young birds got safely off. I have been a pretty accurate observer of birds and their habits for many years, but I never met with anything like this before; indeed with the exception of the Common House Sparrow, I know of no bird that uses the same nest for two successive broods.--R. B. P., Shelly, Stoke-by-Nayland, 1852.

Note on the Cuckoo.--With respect to the late appearance of the Cuckoo, I saw a young bird in this neighbourhood, the second week in September, and could have shot it had I felt inclined.--Idem.

A White Swallow, (*Hirundo rustica*).--A White Swallow was shot in this parish about ten years ago, and is now in the possession of a relative of mine. A White Martin, (*Hirundo urbica*), was shot last summer at Hadleigh, in this county, by a young man; and two others, probably of the same brood, were seen there by many persons. In 1844, I saw three Swallows flying round the railway station at Chelmsford, on the 19th. of November, the latest period that I ever saw either the Swallow or Martin.--Idem.

Hirundo rustica.--The first flock 'fifty birds' appeared early on the morning of April 16th. at Swanpool, wind blowing a gale from E. S. E. The second flock 'nearly one hundred' arrived on the 3rd. of May at Swanpool, 12 o'clock, a. m. wind S. E. very warm.--W. P. COCKS, Falmouth, May 8th. 1852.

Robin, (*Sylvia rubecula*).--On Monday the 5th. instant, I heard a Robin singing in a field at Bridgetown, at nine o'clock, p. m., and on passing the same spot at half-past twelve, it was still singing very sweetly. The moon was shining very brightly.--S. HANNAFORD, JUN., Totnes, April 7th., 1852.

The Hedge Sparrow, (*Accentor modularis*).--Mr. Mc'Intosh does not appear to require much further corroboration of his statements as to the Cuckoo, Abraxas, Hedge Sparrow, etc., attacked by Mr. Doubleday, beyond the able letter of Mr. William Kidd, who is a great authority on these matters, and I know not therefore whether my humble testimony in one respect will be of any service. In case it may be I will mention that I myself have seen and taken a nest of the Hedge Sparrow from a black-thorn hedge at Froome, near this town, with eggs, so late as the last week of the month of June.--JOHN GARLAND, Dorchester, February 11th., 1852.

Ornithology.--Another of those rare birds, the Fire-crested Wren, has been shot in the parish of St. Clement, and is now in the possession of Mr. Passmore, Truro. A Hoopoe has lately been shot at Hendra, in the parish of Ladock. Last week a singular circumstance occurred at Truro: a Cuckoo flew against the plate glass window of Mrs. Tregellas, ironmonger, and instantly fell dead. On examination it appeared by a wound to have been probably struck by a Hawk. These birds are all in the possession of Mr. Passmore, to be preserved.--WEST BRITTON, April 23rd., 1852.

Curious deformity in the Bill of the Jackdaw, (*Corvus monedula*).--A friend of mine shot a Jackdaw, the bill of which was crossed like a Crossbill's; but, notwithstanding its strange shape the bird was in very good condition.--C. STUBBS, Henley-upon-Thames, February 17th., 1852.

Occurrence of the Oleander Hawk Moth, (*Metopisilus Nerii*).--A fine male specimen of this rare British Sphinx was taken in the garden of Montpellier House, Brighton, on the evening of Saturday, the 11th. of September, 1852; at about half-past seven o'clock.--E. S. L. SMITH, Brighton, Sussex, September 15th., 1852.

Proceedings of Societies.

Report of the Entomological Committee of the Royal Physical Society of Edinburgh, 1851.—IN a second time presenting the Report of the Entomological Committee, on the order Lepidoptera, some apology seems necessary that it should again come through my hands. I had indeed half expected that it would have been undertaken by Dr. Lowe, this season; and it is only at his request, in consequence of absence from home, and professional engagements at the height of the season, that I have been induced to enter upon the subject. As the Committee, however, issued a programme of excursions at the beginning of the season, some account of the results of these will naturally be expected; and it will be my endeavour to render it as accurate and comprehensive as possible.

The first-stated excursion on the list, is on the 17th. of May; but some of the members paid a previous visit to the Pentland Hills on the 13th., when the cases of one of those singular insects, called by the Germans *Sackträger*s, were found in considerable numbers on the wall of an old sheep-fold; the enclosed insects being still in the pupa state, but quite ready to burst their envelope; as all emerged in the course of a few days after, and were, without a single exception, females; which immediately commenced ovipositing in the empty cases which they had just left, filling them with large oval yellowish looking eggs; after which they speedily died from exhaustion. Without both sexes it is difficult to determine the species, but it would appear to be closely allied to the continental *Taleporia Lichenella*. On the same day several specimens of *Amphysa Prodromana* were taken; an insect with singularly pectinated antennæ, first observed in this country many years ago in Lanarkshire, and described by Curtis and Stephens under the names of *Walker*i and *Walker*ana.

At Dalmeny on the 17th. of May there was a very poor attendance of members, and not very many insects, though *Incurvaria masculella* was dancing round the hawthorn sprays, and several rather curious *Lithocolletes* were beaten from Scotch firs. An insect new to the Edinburghshire list was taken at Roslin, on the 22nd., flying by the bank of the river: it is the *Roeslerstammia pygmaea* of Haworth and Stephens. On the Pentland Hills on the 31st. of the month, *Phoxopteryx unguicana* was abundant among the short heath near the summits; and lower down, near the base of a hill covered with juniper, where the heath gave place to short mountain turf, abounding with *Potentilla tormentilla*, *Æcophora Leuwenhoekella* was discovered in the greatest profusion; but somewhat difficult to capture, from their unwillingness to rise from the turf, and extreme activity when they did so. One or two specimens of *Argyresthia Arceuthina* were found among the junipers; another addition to the Edinburghshire list, and several of a species of *Eupithecia*, which is apparently undescribed. In crossing over the top of a hill about the same elevation as that on which *Phoxopteryx unguicana* occurred, but in addition to the heath, covered with a crisp gray lichen, *Gelechia longicornis*, also new to Edinburghshire, rose at every step; and a little lower, a single specimen of *Plutella Dalella* was taken, which had no doubt lived over the winter, as it is an autumnal insect.

On the 7th. of June, *Tinea praelatella* was again found in the little wood at Ormiston, and was observed chiefly on the shaded side of the wood, where a quantity of *Geum urbanum* and *rivale* grows, upon which it is not improbable the larva feeds. It is stated by Freyer to live upon Wild Strawberry, in a case; but it not unfrequently happens, that an insect not strictly polyphagus, feeds upon several allied plants in the same natural order. *Æcophora quadripunctella* was not seen upon this occasion, but some small dark brown pupæ, beaten out of wild briar, produced this insect a few days after.

At Torwood, on the 3rd and 5th of July, a great many interesting species were observed, several of which have not previously been recorded as Scotch. Among the species taken, may be mentioned *Coleophora juncicoella*, one of the smallest known species in the genus, *Stigmatonota redimitana*, *Mixodia palustrana*, *Nepticula argyropeza*, *Microsetia Gleichella*, etc., etc.

On the 12th. of July, the committee met at Grant's House, in Berwickshire, and proceeded through the Penmanshiel woods to the Pease Dean, meeting with several interesting species by the way, though the day was unfavourable, the wind being very high. *Trifurcula immundella* was taken from the broom, *Lithocolletis*? * flying round hazel; *Coleophora fuscedinella*

* This is one of the *Frolichiella* group, but does not seem exactly to correspond with any of the known species. It may be *L. Nicellii*.

from the birch, which swarmed with *Argyresthia Brockeella*, and from which also *Penthina Picana* was beaten; seeming to indicate this tree as the food of the larva, which is unknown. In the Pease Dean a single specimen of *Olindia Umana*, was taken; and *Argyresthia Albistria* was not scarce among the sloe bushes which line the edge of the bank below the bridge.

At the base of the Lammermuirs, near Pressman Lake, on the 2nd. of August, the party was considerably disappointed by finding the old birch wood on the hill side cut down, and with the exception of a few trees in the centre and upper corner, a mass of dead branches and root-stumps. In a marshy hollow, however, a little to the eastward, they took the rare *Ecophora flavimaculella*, singularly enough, at the same time and in the same place where the larvæ had been found last year feeding on the umbels of the *Angelica sylvestris*, but when these were examined in the expectation of finding the larvæ again, not one was to be seen; so that it would seem to be very uncertain in the periods of its appearance in the larva and perfect state. At Guillane Links on the 8th., *Aphelia pratana*, and *Pyrausta purpuralis*, not a very common insect in Scotland, occurred in considerable numbers.

Towards the middle of August, *Ochsenheimeria Vacuella* was abundant in the little marshy hollows near the top of Arthur's Seat, flying close over the grass and rushes in the heat of the day. Towards sunset none were to be seen, as they disappeared among the herbage, and gave place to *Elachista atricomella*. One or two worn specimens apparently of *E. Kilmunella* were also found, but its season was over before the hollows were examined. One very beautiful specimen of *Elachista*? * however, was taken resting on a blade of grass; and there can be little doubt that these hollows, small as they are, are well worthy of examination another year, and will probably furnish some novelties to the district.

On the 30th. of August, the Committee met in Torwood, Stirlingshire; and, though rather too near the end of the month, found *Argyresthia spinella* in considerable numbers, and in tolerably good condition.

On the 27th. of October, several members paid a concluding visit to the Pentland Hills; which had never before been examined so late in the season. The day was beautifully fine, being the very last of the fine weather, and they were rewarded by finding *Exapate gelatella*, another addition to the Entomology of Edinburghshire, in the greatest profusion, flying over the heather; besides meeting with fine specimens of *Zelleria fasciapennella*, and of *Peronea mixtana*.

In conclusion, I may mention that we have added twelve species to the Edinburghshire list this season, namely, *Amphysa prodromana*, *Gracilaria auroguttella*, *Roeslerstammia pygmæana*, *Argyresthia arcuthina*, *Gelechia Cirsella*, *G. longicornis*, *Ornix torquilella*? *Nemotois mini-mellus*? *Argyresthia dilectella*, *Depressaria conterminella*, *Elachista*? *Exapate gelatella*.

R. F. LOGAN.

Obituary.

It is with much regret that we announce the death of PROFESSOR MACGILLIVRAY, at Aberdeen, on the 5th. of September. His valuable work on British Birds is well known, and will long be referred to as a standard authority: we wish its publication had proved more lucrative to its author than we fear it did. Science has lost a valuable follower in Mr. Macgillivray.

The Querist.

A correspondent has inquired of me whether insects captured in Guernsey and Jersey, are to be regarded as British ones or not? It is an interesting question, and I shall feel much obliged to any of your correspondents who can answer it "on authority."—F. O. MORRIS, Nafferton Vicarage, Driffeld, September 4th., 1852.

* Perhaps *Bisulcella*, Zeller.

LOCAL JOTTINGS.—No. 5.
DORCHESTER—DORSETSHIRE.

BY JOHN GARLAND, ESQ.

The Snake, (*Natrix torquata*).—Remembering the observation quoted in some portion of the first volume of "The Naturalist," that "Facts are stubborn things," I am induced to mention one or two anecdotes of the Snake, although with much diffidence, from the fear of being "Doubled" up as Mr. Mc'Intosh was attempted to be in the memorable Cuckoo controversy; I will, however, vouch for the truth of them.

Some few years since I was walking in one of our walks, when I saw a Snake glide into a rut made by cart-wheels in the turf adjoining the walk. I should premise that this town is surrounded on three sides by terrace walks, planted with chestnut and sycamore trees, very much in the style of the boulevards of the French towns, and turf is at the sides of some of them. I looked in the cart-rut, and perceived the Snake and several young ones, not very large. I stepped back with the intention of picking up a stone, still keeping my eye on the spot, when I saw the old Snake glide out of the rut, cross the roadway, and go into a hedge by the side. I then went to the rut and looked in, thinking to take the young Snakes, but to my surprise saw none of them. I searched for them in vain, and have no doubt they must have been taken away by the old Snake's swallowing them *pro tem*:—I am quite sure I must have seen them had they remained there, as I never once lost sight of the spot, although I did of the depth of the rut.

A short time before the above occurrence, I was one day passing at Grim stone, just four miles from this town, when I observed a dead Snake, about three feet long, hanging up on one of the arms of a directing post, and some boys pelting it with stones. I passed on, and when I returned from making the call which was the object of my journey, the boys were still there. It occurred to me that I should like to see the Snake opened, and one of the boys proceeded to do this. I saw various things taken out of it, such as what I conceived to be a mouse and other partly-digested things, but also, what struck me as rather singular, a minnow, about two inches in length, almost perfect. The water-meadows adjoin the road, and possibly it might have found a dead minnow on the bank of one of the rivulets: I cannot otherwise account for it. I have had some little experience in the habits of Snakes, having when at school frequently kept them, feeding them with insects, etc., but I never remember seeing any mention of instances like the above. I made notes of both occurrences at the time.

Dorchester, April 19th., 1852.

NOTES ON THE NATURAL HISTORY OF SOUTHAMPTON.

BY WILLIAM D. BALSHAW, ESQ., JUN.

A VERY general opinion seems to be entertained by naturalists that the Whinchat, (*Saxicola rubetra*), is with us only a summer visitant, making its appearance in the southern parts of the country about the middle of April, and migrating again, according to some authors, almost the first of our birds of passage, being, as it is stated, very susceptible of cold. My own observations however tend rather to show that, at least in the neighbourhood of Southampton, it remains the whole year with us.

On this point Yarrell, in his "British Birds," vol. i. page 250, says, "The similarity in various points between these two birds (*Saxicola rubetra* and *Saxicola rubicola*), has induced a partial belief that the Whinchats, like the Stonechats, remain here during the winter, but the Whinchats almost to a bird depart in autumn to go farther south; I am not aware of more than two authentic instances of the Whinchat's being seen here in winter." Upon all the commons in the neighbourhood of Southampton, these Furze Toppers, as they are there popularly called, are very numerous during the whole of the year, and often have they excited my attention in the most dreary winter weather by their lively and active motions in search of food. So frequently had we established the fact of their spending the cold weather with us, that I never thought it worth while to record in my journal the dates when I saw them; except during the severe winter of 1846-7, when both males and females were seen. The entry bears date February 25th., which was a bright frosty day, with snow lying in some of the more sheltered spots.

White, in his "Natural History of Selborne," (Letter xxv. to the Hon. Daines Barrington,) in a list of soft-billed birds which, though insect-eaters, stay with us the year round, includes the Whinchat.

I shall be very glad to see the opinions of any of your correspondents, on this interesting subject, expressed in the pages of "The Naturalist."

During the summer of 1848, a most remarkable flight of the common Lady Bird, (*Coccinella septempunctata*), alighted in the neighbourhood of Southampton, and at the time excited considerable attention among us. These insects were found in by far the greatest numbers upon, and in the immediate vicinity of the Milbrook shore. I well recollect our astonishment when, walking along the beach, one day towards the beginning of August, we found the railings of the Southampton and Dorchester Railway *literally red* with them, where a few days before there had not been one. They swarmed in the same numbers on the fence enclosing the grounds of Freemantle House, the seat of the late Lady Hewitt. Further from the shore they appeared in unusual numbers during the whole of the autumn, and were to be seen in great abundance even in the windows of houses.

The year 1848 was altogether very remarkably prolific in insects. In the

course of the summer we captured specimens of many of the scarcer butterflies, which were never obtained in previous seasons. Among them I may mention the Silver Streak, (*Argynnis Paphia*), only one specimen of which, and that very much battered, had till this year fallen into my hands. I may safely say that, had we been so disposed, we might have possessed ourselves of some scores, both of this and the Dark Green, (*Argynnis Aglaia*), which are not, generally speaking, very common. We also captured the Glanville, (*Melitœa Cinxia*), rather frequently, which is said by Rennie to be very uncommon; and the Hair Streaks, (*Thecla Quercus* and *Thecla Rubi*), were more than usually abundant. Several, I may indeed say a good many specimens of the Marbled White, (*Hipparchia Galathea*), were this year seen, while only one or two were noticed throughout the whole course of the succeeding summer. This was likewise the only year in which we ever met with the Wood White, (*Leucophasia Sinapis*), of which we obtained several specimens in the New Forest, as well as one or two in the copses nearer the town.

There is one remarkable circumstance connected with the Entomology of Southampton, which I am quite at a loss to account for, namely, that though during the season, (August and September,) the Clouded Saffron, (*Colias Edusa*), is very plentiful in the immediate vicinity of Netley Abbey, not a specimen of it is to be seen elsewhere. They are rarely to be met with at the distance of a mile from the ruins, and I have sought for them in vain on the western side of the Itchen. In a field, however, a few hundred yards beyond the Abbey, this insect may be captured at the rate of a dozen per diem. The caterpillar is said to feed on grass; and I am not aware that there are any peculiarities of herbage which will account for their being so strangely local.

The summer of 1847, too, while other butterflies were not more than usually numerous, appeared to be very favourable to the production of the Admiral, (*Vanessa Atalanta*.) In our garden there were two Strawberry trees, (*Arbutus Unedo*), which seemed to be very favourite resorts with them, and on which they alighted in great numbers. Four, five, and even more might frequently have been observed on one tree at one time, and that all the day long: the havoc which we made among them by the capture of scores not appearing to diminish their numbers.

In the hope that it may be interesting to some of your entomological readers, I append a list of such butterflies as I have caught in the neighbourhood of Southampton.—

Primrose, (*Gonepteryx Rhamni*).—Common.

Clouded Saffron, (*Colias Edusa*).—Near Netley Abbey.

Cabbage, (*Pontia Brassicæ*).—Very common.

Turnip, (*Pontia Rapæ*).—Very common.

Green-veined, (*Pontia Napi*).—Very common.

Wood Lady, (*Mancipium Cardamines*).—Common.

- Wood White*, (*Leucophasia Sinapis*.)—New Forest in 1848.
Duke, (*Nemeobius Lucina*.)—One specimen, New Forest, 1848.
Scabious, (*Melitœa Artemis*.)—Frequent.
Glanville, (*Melitœa Cinxia*.)—Scarce. Frequent in 1848.
Prince, (*Melitœa Euphrosyne*.)—Not uncommon.
High Brown, (*Argynnis Adippe*.)—One or two specimens taken in 1848.
Dark Green, (*Argynnis Aglaia*.)—Scarce. Frequent in 1848.
Silver Streak, (*Argynnis Paphia*.)—Scarce. Frequent in 1848.
Elm, (*Vanessa Polychloros*.)—Somewhat scarce.
Tortoise-shell, (*Vanessa Urticæ*.)—Common.
Peacock, (*Vanessa Io*.)—Common.
Admiral, (*Vanessa Atalanta*.)—Frequent. Abundant in 1847.
Painted Lady, (*Cynthia Cardui*.)—Frequent.
Speckled Wood, (*Hipparchia Aegeria*.)—Common.
Wall, (*Hipparchia Megæra*.)—Common.
Grayling, (*Hipparchia Semele*.)—Very abundant.
Marbled White, (*Hipparchia Galathea*.)—Scarce.
Gatekeeper, (*Hipparchia Tithonus*.)—Very abundant.
Meadow Brown, (*Hipparchia Janira*.)—Very abundant.
Ringlet, (*Hipparchia Hyperanthus*.)—Not common.
Black Hair Streak, (*Thecla W. Album*.)—Not common.
Purple Hair Streak, (*Thecla Quercus*.)—Not common.
Green Hair Streak, (*Thecla Rubi*.)—Frequent.
Copper, (*Lycæna Phleas*.)—Common.
Azure Blue, (*Polyommatus Argiolus*.)—Common.
Chalk Hill Blue, (*Polyommatus Corydon*.)—Common.
Clifden Blue, (*Polyommatus Adonis*.)—Frequent.
Lead Blue, (*Polyommatus Argus*.)—Common.
Grizzle, (*Thymele Alveolus*.)—Frequent.
Great Streak Skipper, (*Pamphila Linea*.)—Common.

During the year following the completion of the Southampton and Dorchester Railway I met with two scarce plants growing on it; they were the Lesser Quaking Grass, (*Briza minor*), and the Ivy-leaved Toadflax (*Linaria spuria*.) As they were only discovered at this time, I am inclined to think that the seed must have lain hidden in the earth, and that when by the construction of the line, they were brought near the surface, an opportunity of germinating being afforded them, they instantly put forth those powers, which it is well known many seeds will retain for an indefinite period.

During the summer of 1849, when the cholera was committing its ravages in this country, and proving particularly fatal in Southampton, the almost entire absence of Flies, (*Muscidæ*), in the house, was very remarkable. The same season was distinguished for its unusual heat.

As early as March 24th., 1849, I noticed a single Bank Martin, (*Hirundo riparia*), hawking for insects, on the Netley shore, the morning being rather

damp and misty. A very large colony of these birds established itself the same year in the sand-pits, near the Itchen Ferry, but the bulk of its members did not make their appearance till three or four weeks after the above date.

About the end of March, 1849, I saw a Crested Grebe, (*Podiceps cristatus*), on the Southampton Water.

Fleetwood, September 7th., 1852.

NOTES ON SPRING FLOWERS AND MIGRATORY BIRDS.

BY S. HANNAFORD, ESQ., JUN.

My Botanical papers in "The Naturalist," having commenced with May, last year; there are some few of our rarer plants which I did not then mention, and some even which are not included in my "Flora Tottoniensis," 1851; these I purpose naming very briefly here, with the dates of the arrival of such of our migratory birds as I have seen.

April 2nd.—On the banks of the Dart, between Hood Cottage and Austin's Bridge, I found this day *Vaccinium Myrtillus*, (Whortleberry,) many of the flowers of which have ten stamens, although included in the Linnæan class *Octandria*; *Calluna vulgaris*, (Common Ling;) *Alchemilla arvensis*, (Lady's Mantle;) the two last-named are not yet in flower, but mentioned here as this is a new habitat for the former, and the latter has not been previously observed. *Tussilago petasites*, (Butterbur;) occasionally in dry hedges, *Luzula campestris*, (Field Rush;) *Hypnum hornum*, *H. dendroides*, *H. alopecurum*, *H. squarrosum*, *Polytrichum commune*, *Anomodon viticulosus*, etc., etc.

April 7th.—Chiff-chaff, (*Sylvia hippolais*), heard this day.

April 9th.—On an orchard hedge between Totnes and Truastreet, I met with *Vinca major*, (Greater Periwinkle,) some distance from any house; on a bank in Weston lane, near Truastreet, which was covered with *Vinca minor*, I obtained specimens of *Asarum Europæum*, (Asarabacca;) *Helleborus viridis*, (Green Hellebore;) and in a copse on the Paignton road, *Daphne laureola*, (Spurge Laurel;) in great beauty *Viola odorata*, (Sweet Violet,) the white variety; and *V. canina*, in greater abundance and finer than I have ever seen it elsewhere; by the roadsides everywhere *Cardamine hirsuta*, (Hairy Cardamine,) and on walls *Arabis hirsuta*, (Hairy Wall Cress;) *Galium cruciatum* too, is just coming into flower, and it occurs to me here that no botanical work mentions the beautiful dark crimson colour of the stem above each whorl of flowers.

April 9th.—Blackcap, (*Curruca atricapilla*), heard this day. The early arrival of this bird is rather extraordinary, the weather being very cold; an east wind having prevailed for twelve weeks.

April 13th.—Martin, (*Hirundo urbica*), and Redstart, (*Phœnicura ruticilla*), seen this day.

April 15th.—Sand Martin, (*Hirundo riparia*,) seen this day.

April 17th.—On a ramble over the cliffs by the sea, between Paignton and Goodrington, I observed *Cochlearia officinalis*, (Common Scurvy Grass,) in great abundance; *Silene maritima*, (Sea Campion,) *Statice armeria*, (Sea Pink.) On the rocks beyond Goodrington I discovered two new groups of *Asplenium marinum*, in addition to that found in the same locality by Dr. Barry in 1851. It is worthy of remark that in specimens of this Fern brought from Dartmouth Castle, the pinnæ are *lanceolate*, whilst in those obtained at Goodrington, the pinnæ are, as Moore in "British Ferns" describes them, "*obtusely ovate*." In a corn-field at Goodrington, I gathered *Cerastium tetrandrum* (Tetrandrous Mouse-ear Chickweed,) easily distinguished from *C. semidecandrum*, although mentioned in "Flora Devonensis" casually as a variety of that plant; *Fedia olitoria*, (Corn Salad.) On the sands at Paignton, *Erodium cicutarium*, (Hemlock Stork's Bill,) and a species of *Arenaria*, not yet in flower, but which from the two stipules at the base of the stem and the ribless sepals, I think may be *A. rubra*; and on a wall in Paignton village *Saxifraga tridactylites*, (Rue-leaved Saxifrage.)

April 18th.—Swallow, (*Hirundo rustica*,) first seen.

April 19th.—Cuckoo, (*Cuculus canorus*,) first seen.

Totnes, April 24th., 1852.

RARE BIRDS OCCURRING IN ABERDEENSHIRE.

BY JOHN LONGMUIR, ESQ., JUN.

Bohemian Waxwing, (*Bombycilla garrula*.)—This bird has occurred several times in Aberdeenshire. Three were shot in January, 1850, in the vicinity of Aberdeen, by Mr. A. Mitchell, taxidermist. The same person shot six out of a rather large flock, which he found perched on a mulberry tree at West-field, near Aberdeen, in the beginning of February, 1851. About the same time Mr. Morison, Constitution Street, shot two in his garden.

The Hoopoe, (*Upupa epops*.)—A specimen of this rare visitor was shot between March and April this year, by the gamekeeper at Crimmonmogate, Aberdeenshire. It was a male.

A White Blackbird, (*Turdus merula*.)—Two specimens of this bird, of a pure white colour, were lately obtained near Aberdeen. The one, at the Coor, was an old bird; the other, a young female, was shot near Woodside. Both these birds were obtained in April, 1852.

The Crane, (*Grus cinerea*.)—This "occasional and very rare visitor," as Yarrell entitles it, has lately occurred in this neighbourhood. It was first seen about the end of May, in a field about eight miles up the River Dee, and remained some days in the vicinity before being shot. It was a young male, and is now in the possession of Mr. Alexander Mitchell.

Turtle Dove, (*Columba turtur*.)—I have only heard of two specimens of this bird being shot in the neighbourhood. The one, in August, 1849, near Old Aberdeen, was a young bird just beginning to assume the mark on the neck; and the other, in September, 1851, was a younger bird still. They were both shot by Mr. Mitchell.

Pied Flycatcher, (*Muscicapa atricapilla*.)—Mr. Yarrell does not mention the occurrence of this little bird in Scotland. I am happy, however, to be able to state that a single specimen was obtained by Mr. Robert Dickie in the wood of Hazlehead, near Aberdeen, about the month of July, 1845.

Great North American Shrike, (*Lanius borealis*.)—This bird, though last on my list is the most important one. A specimen of it was shot (the only one, I believe, as yet obtained in Britain,) by Mr. Thomas Mc' Kenzie in the month of April, 1848.

I have to record my obligations to Messrs. Mitchell and Mc' Kenzie for many of the foregoing particulars.

Aberdeen, July 3rd., 1852.

A BOTANICAL SCRAMBLE ON HELVELLYN.

At the south-west corner of Helvellyn, and about half-way between Keswick and Ambleside stands the city of Wythburn, composed of about a dozen hind's houses, an inn, and a chapel, said to be the smallest in England:

"Wythburn's modest house of prayer,
As lowly as the lowliest dwelling."

I cannot go on without noticing the interesting walk, or, as most tourists would make it, drive from Keswick to Ambleside. The distance is about sixteen miles, and embraces no less than five of the English lakes, with just a peep at a sixth. First, at Keswick, we have Derwentwater, surrounded by hills of every variety of outline, and studded with well-wooded islands. Getting a mile or two from town we turn back to "cast one longing, lingering look behind;" and in a rich green valley we have a picturesque little town and two lakes—Bassenthwaite like a sheet of silver in the far north, and almost beneath our very feet Derwentwater rolls, like nothing, save itself; the majestic Skiddaw looks over the whole and nods to his brothers Saddleback, Helvellyn, and Scawfell; all of which are seen from the Castle Rigg, and form a scene of which any country might be proud. Passing on we have Thirlmere, a long stretch of water, on our right and Helvellyn rising at our left; further still we have Grassmere, whose very name bespeaks its beauty; then Rydal, and lastly Windermere, the largest of all the English lakes; which begins to shew lacustrine breadth, and continues full half its length between the counties of Westmorland and Lancashire, and ends in the latter in the River Leven.

Stopping then at Wythburn, and after a good night's rest, for we got in late, we get up just to see if the sun has been before us, and find that he has long since cast his morning beams into the lake, and that we have been dreaming away the best part of the morning. However an early breakfast, and off at half-past seven to Dunmail Raise, and caring little whether that mighty monarch sleep there or elsewhere, we take a walk or rather a climb up the Ghyll, passing first over

———"That pile of stones,
Heaped over brave King Dunmail's bones;
He who once held supreme command,
Last king of rocky Cumberland."

It was about the middle of the hot month of July, and on one of the warmest days in it, when, plaid over arm, for we frequently have pelting showers here when least expected, we got over the first dozen large stones which lie not only by the side of the stream, but which disturb its very bosom, and cause the smooth water to dash into many hundred little cataracts. *Saxifraga aizoides*, was the first plant whose appearance attracted notice, and certainly from the plentitude of its bright yellow flowers and shining linear leaves, it does deserve a corner in our vasculum, notwithstanding its abundance in every moist place in the district. *Sedum anglicum* inhabits rather drier places among the loose stony soil, about the foot of the hill; those who do not know the plant will have a pretty good idea of it if they suppose the Common Stone Cress, (*Sedum acre*), with white instead of yellow flowers, and withal of a duskier hue, and less luxuriant in growth.

Further up the steep Ghyll *Saxifraga stellaris*, with its wedge-shaped leaves, star-like flowers, and spotted with yellow, grew among damp moss, under the spray of the water; here also the rarer *Saxifraga hypnoides* found space and enriched my collection. Toiling still on in the warm sunshine, over huge masses of rock, I came upon the Kidney-leaved or Mountain Sorrel, (*Oxyria reniformis*;) this is by no means a common plant, though I have met with it before in the neighbourhood of Keswick, at Ashness Ghyll. It grows from one to two feet high, with very fleshy leaves of a kidney shape, and has a spike of flowers very much resembling the Sorrel, which induced the earlier observers to call it a *Rumex*.

Among the grass, which consists in a great measure of *Festuca ovina*, was found the Common Club Moss, (*Lycopodium clavatum*), in fine fruit; The Fir-club Moss, (*L. selago*), was quite as plentiful, as also the *L. alpinum*. *L. selaginoides* was less abundant, but in the marshy ground about eight hundred feet up the hill, a plentiful supply might have been obtained. *Carex pulicaris*, (Flea Sedge,) grew among tufts of damp grass, and Forget-me-nots of different species, including *Myosotis repens*, *cæspitosa*, and *palustris*, and numberless forms of each, occurred from the ditch at the foot of the hill to the point of my ambition for the day, namely, Grisedale Tarn. This is one of the largest Tarns in the district, and is surrounded by hills on every

side but one, which looks down a long, deep, almost pathless valley into Patterdale, and commands just a peep of fair Ullswater.

Getting over from the Ghyll by which I ascended the path, or rather *way*, for there is no regular path, passing through a little wilderness of soft brown bog earth, laid bare by the winters' floods, and holes covered with *Sphagnum*, in which should the foot of the traveller unluckily light, he goes knee-deep in water. Rushes, (*Juncus effusus*,) are in plenty, as well as a moderate supply of Heather, (*Calluna vulgaris*,) and Hair Grass, (*Aira cæspitosa*,) and by planting the foot in one of these tufts, and carefully drawing the other after, we pass over even the worst parts without further inconvenience than a wet shoe. I had got then by the side of the Tarn, and began alternately to admire the scene, and repeat to myself Wordsworth's description of Red Tarn:—

"It was a cave—a huge recess,
That keeps till June December's snow;
A lofty precipice in front,
A silent Tarn below.
Far in the bosom of Helvellyn,
Remote from public road or dwelling,
Pathway or cultivated land,
From trace of human foot or hand."

But I called to mind that the only poetry I had a right to think of in that spot, was that of nature—that I had come to seek for plants, not poesy. So without looking to see the 'sometimes' leaping fish, or even listening for the 'lovely cheer' which they send round the Tarn, I addressed myself to some rocks, which act as portals at a point where the Tarn sends forth a merry stream to gladden the vale of Patterdale, and add its mite to the Lake of Ullswater. Nor were my addresses saucily rejected. Two of the prettiest and rarest of our Alpine plants rewarded my endeavours; the first was the Alpine Meadow Rue, (*Thalictrum alpinum*,) but unfortunately it was not in flower; I took with me however, a few of its delicate maiden-hair-like leaves as a token of friendship. The Alpine Hawkweed, (*Hieracium alpinum*,) was the other prize yielded by this point, and by no means a poor one. It has rarely more than one head of flowers, of a golden yellow, surrounded by strap-shaped bracts of a darkish hue, covered over with hairs of a silky whiteness, many of them at least half an inch in length. It is an old belief, probably taking its origin in the usual habitat of the plants, or not unlikely in the bright golden yellow of the eye-like flower, that Hawks fed upon these for the purpose of sharpening their sight, and hence the common name Hawkweed, as well as the generic title *Hieracium* from *Hierax*—a Hawk.

Still the chief object of my ambition was unattained. I had been informed by an intelligent botanist, Mr. Flintoft, that the *Silene acaulis* grew on some rocks rising to the left as we look down into Patterdale, and to pick, for the first time, this little gem was my desire. To gain even the bottom of those crags was no easy task, but I could have wished the difficulty doubled

in order to have sacrificed the more for the sake of the prize. I soon had enough of difficulty however, for though the *Silene* was to be had without setting a foot on the Crag, yet in order to get it in flower, no small amount of climbing and balancing was required. The truth is, I was like many people in pursuit of less harmless pleasures, behind time; I should have been a month sooner, and then such a show of flowers as no lowland botanist could believe, without the unmistakeable evidence of the multitude of capsules. After much hair-breadth posturing and anxious searching, I at last succeeded in finding two patches of the plant in flower; they were the first I had ever looked on in a fresh growing state, and on the hill where for centuries they had kept lonely watch. No dried specimen, were it ever so perfect a pattern of pressing, could afford such pleasure; I could have danced with joy, but my position required the utmost caution, and dancing forms no part of the naturalist's qualifications. The *Silene* grows in dense tufts, and at a distance might be mistaken for patches of Thyme, (*Thymus serpyllum*,) but that the masses are much denser, and the leaves brighter, and perfectly free from hairs. The flowers are only one on a stalk, and have much the same colour as Thyme.

I shall but stay to mention two more plants found associated with the plant of the day, although I might run out a list of no end. *Arenaria verna*, not a rare but a very beautiful plant, is deserving of being picked from its rocky seat even by those who know nothing of botany. The Alpine Lady's Mantle, whose satin leaves we might suppose the little folk, the fairies, used to deck out a Titania or some other Queen, here decorates the bare hard rock. This last mentioned plant, with the *Oxyria reniformis* and the *Silene*, form a trio by no means to be despised. For the benefit of those who have not the time or perseverance, for I do really think, without much self-conceit, that it requires a little to ascend Dunmail, I may state that two of them, namely, the *Oxyria* and the *Alchemilla*, grow in Ashness Ghyll, about two miles from Keswick, the latter but sparingly, though it may be had in basket-fulls at a Ghyll above Applethwaite, under Skiddaw. The *Silene* must be sought however by Grisdale Tarn; or, if the tourist will venture some twelve miles up Borrowdale, he will perhaps find it and *Saxifraga oppositifolia*, on Great End Crag, where they were found by H. C. Watson, Esq.

After all there is nothing to be compared to a boyish ramble on the hills, warm and tiresome though it be, it seems as if every day so spent was to add a little to ones span of existence, and sure I am that whether it adds in time it will add in pleasure, for who would not look back with a beating heart to a day spent with the Creator on one of his majestic mountains?

Keswick, July 20th., 1852.

FLORA OF THE MEADOWS OF THE PROVINCE OF ORAN.

TO THE EDITOR OF THE NATURALIST.

Sir,

My attention has been drawn to a series of papers on the "Natural Meadows of the Province of Oran," in Algéria, two of which have been already published in a local newspaper, called "L'Echo d'Oran." They are from the pen of Mr. Giles Munby, the distinguished author of the "Flore De L'Algérie," a naturalist of whom this city may be justly proud. These papers seem so full of important and interesting matter to the scientific agriculturist, as affording a comparison between the meadows of that country and our own, and at the same time are so valuable as a contribution to Botanical Geography, that I have made a translation of them, and trust you will consider them as equally likely to please the readers of your Journal. I have only to add that the genera, examples of which occur native in this country are in the translation distinguished by a larger type, and the British species by italics:—no such distinction of course occurs in the French original.

OSWALD A. MOORE.

York, September 13th., 1852.

THE plants which compose the natural meadows of the province of Oran belong almost exclusively to three great families of the vegetable kingdom, that is to say, to the Grasses, Leguminous, and Composite Plants.

We shall consider at first the species of the family of Grasses, and according to alphabetical order:—

AGROSTIS.—This genus, which is so common in all the meadows of the north of Europe, does not show itself in the province of Oran, excepting in species interesting rather to the botanist than the agriculturist, such as *A. ELEGANS*, *A. VERTICILLATA*, and *A. minima*. The *A. vulgaris* is found in the natural moist meadows of the Milidja, at Algiers. It is a variety of the species which has been cultivated in England under the name of Fiorin Grass, and which has been extolled as possessing very nutritive qualities.

AIRA.—Of this genus we have at Oran only two species, which are of no use in agriculture, namely, the *A. MINUTA* and *A. caryophyllea*.

ALOPECURUS.—I have not yet found in the province of Oran any species of this genus; the *A. bulbosus* is by no means rare in the moist meadows of the Milidja, at Algiers.

ARUNDO.—A great kind of Grass, which grows on the hills, called Dis by the Arabs.

ANTHOXANTHUM.—One species of this Grass, sweet-scented Vernal Grass, (the *A. odoratum*,) which in Europe gives the agreeable scent to new-made hay, is found very commonly in the meadows at Algiers, but in the province of Oran there is only one species of any utility—the *A. OVATUM*.

AVENA.—This genus, which comprises the different species of Oat, is

widely spread in our province. Unfortunately the species which is the most useful is also the one which is of the most rare occurrence; I speak of *A. elatior*, called 'Fromental' in French, which is only found at the foot of the Dwarf Palms. *A. STERILIS*, or Barren Oat, is common everywhere, joined with an allied species—*A. HIRSUTA*.

BROMUS.—We have many species of this genus, such as *B. madritensis*, *B. mollis*, *B. DIVARICATUS*, *B. RUBENS*, *B. sterilis*, and *B. maximus*. They are all annual species, and produce but little.

CYNOSURUS.—This genus produces the *C. cristatus*, a species found in all the meadows of Europe, whether natural or artificial. It is rare at Algiers, and I have not yet seen it at Oran. We have the *C. echinatus* and *C. ELEGANS*, insignificant plants.

DACTYLIS.—The *D. glomerata* is common in all the meadows from the north of Europe: it abounds in Oran, and its leaves furnish an excellent pasturage. The other species of this genus are not of any interest; they are the *D. REPENS* and *D. PUNGENS*.

FESTUCA.—In French, Fétuque. We have more than a dozen species of this genus; but the most useful, the *F. pratensis*, is found but rarely in the neighbourhood of Oran. The meadows which contain the most of this species are those of M. Ramogen, at Ain-Beida.

HOLCUS.—I have only found in the province of Oran the *H. mollis*, and that only on the edge of the Ould-Isser, near Tlemcen. Desfontaines, in the "Flora Atlantica," states that *H. lanatus*, (Meadow Soft Grass,) is found in the neighbourhood of Mascara.

HORDEUM.—This genus, which includes Barley, only affords us three insignificant species, namely, *H. murinum*, called in Arabic Goult-el-far; *H. maritimum*, and *H. CRINITUM*.

LOLIUM.—The ray-grass of the English is *L. perenne*, and is found very commonly by road-sides and in gardens. The *L. Temulentum*, the only one of the European Grasses which is poisonous, is happily very rare in the corn-fields.

MELICA.—We have the *M. CILIATA*, which grows among the Dwarf Palms in barren places, and the *M. ASPERA*.

MILIUM.—This genus affords us the *M. CÆRULESCENS*, *M. MULTIFLORUM*, and *M. PARADOXICUM*. Although they are species of the middle of Europe, they do not suffer from the heat. Their stalks are sought for by the cattle in the heat of summer.

PANICUM.—The neighbourhood of Algiers affords many species of this genus, but I have only found the *P. dactylon* near Oran; the roots of which replace those of the *T. caninum* as a Dog's-tooth Grass.

PHALARIS.—The fodder of the plain of Mitidja, and especially that of the low meadows of the neighbourhood of Bouffarick, is composed in a great measure of *P. AQUATICA*, which I have not found at Oran. The other species are the *P. canariensis*, *P. PARADOXA*, and *P. NODOSA*, L. This last plant grows

in the thickets of Dwarf Palm, and possesses a very large and nutritious leaf much sought after by cattle.

PHLEUM.—The *pratense* abounds in the meadows of Bouffarick, near Algiers, but I have not found any species of this genus at Oran.

POA.—We have some species of this genus, of which the commonest is the *P. bulbosa*, which almost forms the basis of the greensward in the neighbourhood of Tiaret. The *P. annua* is found here and there in the gardens. The other species are the *P. rigida*, *P. DIVARICATA*, *P. distans*, and *P. FESTU-CÆFORMIS*; the two last species are aquatic plants, and found in the marshes of Ain-Beida.

POLYPOGON.—This genus affords us two species, which grow in swampy places about the lakes of the Senia and Misserghiu.—They are the *P. monspeliense* and *P. MARITIMUM*.

STIPA.—The commonest species of this genus, and which covers immense tracts in the poor soils in the neighbourhood of Oran, is the *S. TORTILIS*; the other species are the *S. BARBATA*, *S. PARVIFLORA*, *S. LAGASCÆ*, *S. JUNCEA*, and *S. TENACISSIMA*. This latter plant produces Matweed, (Le sparte,) and is called by the Arabs, Halefa.

TRITICUM.—Without speaking of Wheat, this genus furnishes many species which enter into our natural meadows. The Dog's-tooth Grass, or *T. repens*, (Couch Grass,) is found in the neighbourhood of the Senia, and in the marshy meadows of Ain-Beida. The other species are *T. CÆSPITOSUM*, which grows in the thickets of Dwarf Palm; the *T. CILIATUM*, and *T. junceum*.

(Extracted from "L' ECHO D' ORAN," Saturday, June 19th., 1852.)

(To be continued.)

AN ENTOMOLOGIST'S EXCURSION TO WARMINSTER DOWN.

BY MR. MICHAEL WESTCOTT.

THE first of June, Whit-Tuesday, being a holiday, and a Fair in our city, I contemplated enjoying an entomological ramble on that day long before it came. I was up betimes, and took a peep out of my chamber window to ascertain the state of the weather, and was disappointed in seeing a dense fog, which, however, gradually disappeared as the sun's golden beams shed a lustre of joy over Nature's smiling children.

Being fully equipped for the "chase," I started about nine o'clock, accompanied by a youth, who is much interested in the study of insects. We made our way along the Bishop's Park, and soon got into a beautiful sunny lane, leading to Wensley farm. In this lane I started my first game. Its warm, flower-studded banks were so attractive to the insect tribe as to cause multitudes of them to be there flitting about, chasing each other from flower to flower. The Orange-tipped B. (*Pontia Cardamines*;) the Gate-keeper B., (*Hipparchia Megæra*;) and the Wood Ringlet B., (*Hipparchia Hyperanthus*;) were

here in abundance. In this lane I took several caterpillars of the Drinker Moth, (*Odonestis potatoria*,) feeding on common cootch grass; and a nest of the small Egger Moth, (*Eriogaster lanestris*,) feeding on white thorn. The caterpillars of the Drinker Moth are very common in this locality, but I never captured more than one Female Moth, they being nocturnal, and the males very swift flyers, which makes them difficult to obtain in their perfect state, but I have several splendid specimens, both male and female, which I bred. The sexes of the Drinker Moth vary in size and colour very much; the females being of a dark buff-colour, measuring two inches and a quarter in the expanse of the wings; and the males of a dark fawn-colour, and not more than two inches in the expanse of the wings, at least mine measure no more. The *antennæ* of the male are very beautiful, resembling a quill, with the feathers on either side of equal length, and the extreme points of both sides are turned down towards each other, so as to nearly meet. The females are of the same shape, but smaller.

Having taken as many specimens of the above insects as I wanted, I proceeded towards Wensley farm. I saw nothing here of any note, save a brood of young ducks, which were enjoying themselves, swimming about in a pool, to the great discomfort of a *poor hen*, which ran round and round the pool, calling upon them to come out of a place which she naturally supposed would cause their destruction. I proceeded along this lane about two hundred yards, thence along a footpath which led to Twinnles wood, the property of R. C. Ludway, Esq., M.P. On my way thither I found a nest of the Green Woodpecker, (*Picus viridis*,) containing four young ones. These beautiful birds are common in this neighbourhood. As I entered Twinnles wood my attention was drawn towards a Blackbird, nearly white, in pursuit of a young Magpie. I saw five Squirrels sporting about over head, one of which was of a fine cream-colour, and three of the others had white tails. I had not traversed this wood far ere I captured a fine male specimen of the Stag Beetle, (*Lucanus cervus*,) and which was the only entomological object I could find in the wood. But if Miss Catlow had been there on a botanical ramble she would not leave it with such a meager collection of plants as I did of insects: she would find many beautiful subjects to write about. My knowledge being rather limited at present in the interesting science of botany, I cannot describe the many "children of the wood," of various growth and features, looking there so charming and delightful, inviting the lover of flowers to enjoy a few hours of their cheerful company. When I got out of the wood my admiration rose to its greatest height on seeing that pretty little flower, Eye Bright, (*Euphrasia officinalis*,) growing in profusion on the sunny bank.

I now found myself on the top of Twinnles, and in nothing more or less than a large field of clover, nearly in full bloom. On looking around I discovered that the objects of my pursuit were in countless numbers; I therefore prepared for "active service." Close by me was a Humming-bird Moth, (*Macroglossa Stellatarum*,) How charming it was to watch it sporting about

in the sun's golden beams, sipping the nectar from every little flower, alighting on none, but balancing itself while it probed every tube with its long proboscis. However, as I went out to collect specimens, as well as to admire and study the works of the Great Creator, I commenced operations by making captive the Moth I was admiring. I was busily employed in this field for about two hours, as may be seen by the captured specimens named in the following list:—Six Brimstone B., (*Gonepteryx Rhamni*;) eight Large White B., (*Pontia Brassicæ*;) seven Small White B., (*Pontia Rapæ*;) nine Wood Argus B., (*Hipparchia Aegeria*;) ten Large Meadow Brown B., (*Hipparchia Janira*;) ten Heath Butterfly, (*Hipparchia Davus*;) eight Least Meadow Brown B., (*Hipparchia Pamphilus*;) five Green-Veined B., (*Pontia Napi*;) seven Painted Lady B., (*Cynthia Cardui*;) seven Small Tortoiseshell B., (*Vanessa Urticæ*;) one Red Admiral B., (*Vanessa Atalanta*;) twelve Silver-studded Blue B., (*Polyommatus Argus*;) eight Common Copper B., (*Lycæna Phlæas*;) seven Silver y Moth, (*Plusia Gamma*.)

My collecting box being now nearly full, and not seeing anything rare, I started for Warminster Down. As I walked along at the bottom of a wheat field, looking attentively along the bank for caterpillars, I espied a Pheasant's egg lying on an ant's nest. As I wanted a specimen, and knowing that it would never be fruitful in that situation, I claimed it as a prize. After proceeding along this field, and crossing two or three more with a single capture, I found I stood upon Warminster Down. It is a charming place! everything was here that a naturalist could wish for. The scenery was delightfully picturesque. Walking about for some time enjoying the prospects around, I passed over a moss-clad hillock, by the east side of the wood, and came to a spot which really seemed like the famous fairy's bower of the olden time. To describe it is impossible, at least for me. I sat down on a mossy couch to regale myself with a couple of hard-boiled eggs and a little weak brandy and water. But oh, the harmony! I never shall forget it. The Blackbird, Wood Lark, Sky Lark, Thrush, Robin, Whitethroat, yes, and a pair of Nightingales, one of which I could see, were pouring forth their lovely strains, striving to outvie each other. Who, thought I, would not leave the town and its noise, such as the bustle of a fair, the shouting of cattle-drivers, a "tum tum" band parading the streets, horses trotting, vehicles running; in fact, a monotonous and tiresome jumble of unpleasant sounds, incident to a fair, a club, and a holyday, all in one. But even such a day as this has its admirers—may they enjoy it to their profit.

As I sat all attention to the harmony around, a Wood Wren came with father long-legs in her mouth as a dainty morsel for her numerous brood. Taking no notice of me she hopped on her nest, and there seven or eight pretty creatures were fit to fly out of their mossy couch, contending for father long-legs. A Dormouse, too, regardless of my presence, was running about close to me, and in fact came between my legs as I was sitting down, and

* It is very early for this fly to make its appearance, and so it is for the Wood Ringlet.

picked up some crumbs. A Squirrel, in a fine oak overhead, attracted my attention, and as soon as I moved, Mr. Mousy was off like a shot.

Having regaled myself I left, though reluctantly, this charming spot, and proceeded in search of new discoveries. In doing so I walked along a narrow cart-road, nearly overgrown with grass and moss, running through an irregular part of the wood. Here I took a nest of caterpillars of the Golden-tail Moth, (*Porthesia chrysorrhæa*.) As I traversed this cart-road I came to a small pool of water, which is well supplied by a little stream issuing from the hills. In and around this pool was a grand display of insect-activity.—The Water Scorpion was feeding away with the greediness of the Wolf on the larvæ of other insects. The Dragon-Flies, (*Libellulæ*), were here in abundance; I captured several good specimens. While I was engaged watching a battle between a large hunting Spider, (*Aranea viatica*), and a Grasshopper, I was startled by a heavy clap of thunder. I perceived, to my disappointment, that some dark clouds were gathering round; and being about four miles from home I considered a speedy retreat most suitable to my personal comfort—I therefore acted accordingly. However, I had not proceeded above a mile ere I was compelled to take shelter from a heavy storm of rain, which did not entirely abate until I reached home, which was about four o'clock, p.m.; a much earlier period than I anticipated when I started in the morning for Warminster Down.

St. Cuthbert's Place, Wells, July 30th., 1852.

A FEW NOTES ON SOME INSECTS TAKEN DURING A SHORT TOUR IN SWITZERLAND.

BY S. ARTHUR SEWELL, ESQ.

To the naturalist only travelling a few degrees south of England, the change in the natural appearance of the productions is scarcely less interesting than the magnificent scenery which he may there meet with. I found this to be the case in a short tour made last August through various parts of Switzerland, and it has struck me that a few notes on the insects I met with might not prove unacceptable to your readers.

During my passage through France I had seen from the windows of the train innumerable insects, (chiefly butterflies,) which it had never been my fortune to meet with on the wing, and I longed for the time when emancipated from diligences and railways I might capture some new specimens for my cabinet.

My first opportunity was one beautiful morning when under an Italian sky I left Chamounix to walk over the pass of the Tête Noire to Martigny. It was about seven o'clock, but even at that comparatively early hour the insect world was all alive, revelling in the blaze of sunshine which was unintercepted by a single cloud. Though utterly unprovided with any entomological apparatus,

I could not resist the temptation, and so taking a limp felt hat off my head, I began to pursue some of the many butterflies which settled on the path.

The first captured, and which species seemed to be decidedly the most abundant, was a variety of the Scotch Argus, (*Hipparchia Blandina*), distinguished by black ocelli, with bluish pupils on a band of red. This butterfly appears to confine itself to the mountainous districts, as I did not meet with it in the lower valleys.

Having walked on some distance, and being then much higher on the mountains, what was my surprise and pleasure to see, settled on a flower close to the path, a "Glorious Apollo." I cautiously approached him, but being unaware, after I had struck at him, that he was under the lining of my hat, I suffered him to escape, which he did apparently uninjured; of course I was bitterly disappointed, but was repaid by the capture of two others subsequently. This insect, (*Parnassius Apollo*), is very bold; the flight strong and vigorous, and the body thick and leathery, offering great resistance to the pin; the scales also appear not easily rubbed off.

Near the Tête Noire I noticed several specimens of *Argynnis*, "*Adippe*," I believe, which I could not capture.

The Grasshoppers were exceedingly plentiful, including the large green species; and the noise made by them towards the evening was surprising.

Towards noon the butterflies deserted us, and all the insects I saw were a few Beetles. Many Hawks, some of very large size, occasionally were seen floating about among the mountains. Ferns of all kinds were remarkably abundant, and I could promise the botanist a rich harvest in Switzerland.

The next day, in a walk along the plain from Martigny to Villeneuve, I observed a specimen of the Scarce Swallow-tail Butterfly, (*Papilio Podalirius*), Pale Clouded Yellow B., (*Colias Hyale*), was also extremely abundant, as well as the Painted Lady, (*Cynthia Cardui*.)

My next and last opportunity for entomologizing was at Lausanne, where I spent a few days. In a neighbouring wood I took among others, *Argynnis Paphia* and *Leucophasia Sinapis*, tolerably abundant; *Polyommatus Adonis* and *P. Corydon*, scarcer; *Hipparchia Hyperanthus*, or a large variety thereof; *H. Janira*, and also a pale variety; *Pieris Crataegi* and *Zygena Filipendulæ*, and a variety.

In the fields I obtained *Papilio Machaon* and *Colias Hyale*; *Cynthia Cardui* was extremely plentiful, but difficult to capture, being easily disturbed; it is also almost impossible to procure a perfect specimen: there were hundreds in a field of clover which we entered. I purchased a specimen of *Gonepteryx Cleopatra*, which is just like *G. Rhamni*, with the exception of having a brilliant suffusion of orange on the anterior wings. At the proper season it is very common, and found in company with *G. Rhamni*. *Vanessa C-album* is also common, and *Lycæna Chryseis* may be procured without difficulty.

In conclusion, I would remark that the naturalist would find ample compensation for a visit to Switzerland in the variety and beauty of the plants

and insects so easily procurable; and he would, without difficulty, at least be able to fill up the spaces in his cabinet by exotic specimens of the rarest British insects.

Stamford Hill, June, 1852.

Miscellaneous Notices.

In December last I killed a Rabbit, with apparently only three legs, but on closer inspection I discovered a perfect foot with unusually long claws, hanging about an inch from the shoulder; the other leg was particularly muscular. He ran quite as fast as his four-legged brethren, and was killed very near this place.—J. WILLIAMSON, JUN., Sherborne, Dorset, August 17th., 1852.

Occurrence of the Hoopoe, (Upupa Epops,) May 4th., 1852.—A fine specimen was killed near Lyme, Dorset, and presented to my father by a gentleman residing in this town; unfortunately he was on a visit to Cambridge when it arrived, and on his return, it was too far gone to be set up well.—Idem.

Girl Bunting, (Emberiza cirulus,) August 2nd., 1852.—As I was driving early in the morning to Wincanton, I was attracted by the note of a bird that I did not recognise, in a plantation about four miles from here; looking about I discovered a fine male Girl Bunting, on the top of a fir tree. On the following day I walked out and succeeded in killing it, but could not find any more. In a letter from R. A. Julian, Esq., Laura House, dated July 20th. he mentioned having heard three singing, and kindly promised to try and procure me one.—Idem.

June 15th., 1852.—The nest and eggs of the Reed Warbler were brought me this day, taken in a little osier bed, about two miles off. A pair of these birds have frequented the same spot for several years; last year their nest was robbed four times, and this year I regret to say three times; on each occasion they have built a new one a few yards from the former site.—Idem.

Nesting of the Nuthatch, (Sitta Europea.)—Whilst walking through a wood in this neighbourhood on the 18th. of April last, I saw a pair of these birds building. They had fixed upon a hole in an ash tree, about twenty feet from the ground, and were contracting it with a plastering of mud, for which they flew to a small pool about fifty yards distant from the tree, and took pieces in their beaks about as big as a bean, which they laid on, and smoothed with their chin. Sometimes one of them would go inside and remain for a short time, I suppose for the purpose of smoothing the mud there. They would every now and then leave off from their task, and chase one another up the trunk and round the branches of the tree with amazing rapidity, uttering all the while their flute-like whistle. They both seemed to take an equal share of the labour; and had, like the House Martin, small pieces of straw mixed with the mud, for the purpose of making it bind better. They seemed to be quite at ease on the ground, and hopped about much after the same manner as the Sparrow. The male bird was easily distinguishable by his brighter plumage.—C. STUBBS, Henley-upon-Thames, April 6th., 1852.

Rookery Deserted.—In a small wood near to Moore Hall, Cheshire, the residence of Mrs. Heron, a colony of Rooks has been in existence for upwards of thirty years, but is now apparently entirely deserted. In the present year, about the usual time of those birds returning to their annual breeding localities, the wood in question was visited by two pairs of the Carrion, or Black-billed Crows, as they are sometimes called. There did not appear, in the present instance, to be any extraordinary resistance on the part of the Rooks, to retain possession, although in the spring of former years, I am informed, that when a single Crow has alighted near the nests, he has been made to quit the place instantly. I am told also, by those who have been on the spot, that at the commencement of the present year, if the voice only of a single Crow has been heard at the distance of several hundred yards, the Rooks however numerous, have fled from their nests in the greatest consternation. To aid the rightful owners, a price was set upon the heads of the intruders, which resulted in one of the four being killed, and although attentively watched morning and evening for some time, still the object of driving the legitimate settlers was completed by their determined aggressors. Dispossessed of their old quarters, the foundation of another colony was commenced by the Rooks, in some fine Elms in an adjoining

Township, about half a mile from their former settlement, and they were so far unmolested as to have deposited their eggs in some of the new nests, when their old enemies suddenly commenced a second attack, and drove them to seek a refuge elsewhere. Whether the Rooks will, from instinct in the spring of next year, revisit their original breeding-place, or entirely leave the neighbourhood, remains to be seen. The ruins of their former habitations have afforded an asylum for Daws, Starlings, and Sparrows, with which they have been well peopled during so far of the breeding season.—R. O'KELL, Moore, June, 1852.

A Creeper, (*Certhia familiaris*), hatched by a *Titmouse*, (*Parus cæruleus*).—In the latter part of last May, I found a nest of the Blue Titmouse, situated in an out-house, and containing eight eggs, which in due time produced a corresponding number of young birds; and on the 12th. of the present month, on making a careful examination, I discovered, to my surprise, that only seven out of the eight birds were Titmice, the other being a young Creeper. The nest was so placed that it gave me every facility for closely watching this happy family, the parent Titmice feeding the young stranger with all the care and solicitude bestowed upon their own offspring. The young Creeper left the nest on the 17th. and the Titmice on the 18th. of this month. I will only add, that I frequently observed a pair of Creepers in the neighbourhood of the nest, but could not detect any actual approach to it.—J. H. B., Luton, Bedfordshire, June 23rd., 1852.

The Roller in Hertfordshire.—On Monday the 20th. inst., a labourer came running in from the Orchard, with the intelligence that there was a "comical bird in an apple tree." My neighbour, who was lucky enough to be in the way, went out with his gun, and forthwith came to me with a magnificent specimen, an adult female in full plumage, of *Coracias garrula*, (Chattering Roller.) The bird was but slightly wounded, and uttered a most discordant note. I observed that it was exceedingly tenacious of life.—C. A. J., Callipers Hall, Herts., September, 1852.

The Swallow, (*Hirundo rustica*).—I saw Swallows here, for the first time this season, on Saturday, the 1st. of May.—J. P. FRASER, Glasgow, May 6th., 1852.

Swallow.—(*Hirundo rustica*).—Aware of the truth of the old saying that "one Swallow does not make a summer" still perhaps it may not be unworthy of mention that I saw one of these birds flying about apparently in great enjoyment on Easter Monday, April 12th. instant. A friend of mine saw twelve or fourteen over a pond about a mile and a half from this town yesterday.—JOHN GARLAND, Dorchester, April 19th. 1852.

Green-crested Cormorant, (*Phalacrocorax graculus*).—A few days ago I saw at Mr. Bolitho's, Taxidermist, of this town, a very fine specimen of this bird in full breeding plumage, which was captured by some boys at the mouth of the River Yealm, with sticks and stones, on the 3rd. of this month.—W. E. MATTHEWS, 4, Portland Square, Plymouth, April 16th., 1852.

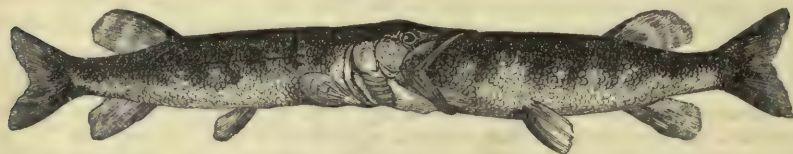
Curious Variety of the Yellow-hammer, (*Emberiza citrinella*).—As I frequently observe in "The Naturalist," that you record any unusual variety of plumage in which birds occasionally appear, I have much pleasure in communicating a remarkable change of costume in which I discovered the Yellow-hammer on the 11th. of this month, in the island of Gometra, which lies about six miles to the north of Staffa. I visited that district exclusively for the purpose of making myself acquainted with the birds which might be found there; and while standing at the door of Mr. Mc'Lean's house, a gentleman whom I am much indebted to for his kindness during my visit, my attention was directed to a bright yellow bird attempting to alight within eighty yards of me, but was so much beset by a flock of Linnets, (*Linaria montana*), that he flew off to some distance. I immediately called the attention of my young friend Mr. Sinclair, who accompanied me in the excursion, and requested him to mark well till I got my gun, which was the work of a second. I very soon got up to within twenty yards of it, and upon such close examination I was convinced that it was a *Canary*! which had escaped from Miss Mc'Lean, and rather than risk my reputation in bagging *such* a bird, I requested Mr. Sinclair, in the distance, to make the inquiry, who assured me it was not. It was with considerable difficulty that I could again get within shot, as some Whinchats, (*Saxicola rubetra*), were now in full pursuit; and just as he was ascending a rocky eminence I shot him, and have preserved the skin to establish the fact of the "Jackdaw in the Peacock's

feathers." The following forenoon another was discovered, which Mr. Sinclair and I immediately gave chase to, but, like the former, he appeared to have no friends, as the Whinchats were again in full cry, and, after following him over some rocky precipices, he escaped, to die, however, the following evening, as Mr. Sinclair had the good fortune to shoot him.—GEORGE DONALDSON, Glencripsdale, Loch Sunart, August 18th., 1852.

Occurrence of the Little Bittern in Norfolk.—A male specimen of this exceeding rare bird was shot at Somerlyton, near Lowestoff, on Tuesday, May 18th. It was purchased for the Norfolk and Norwich Museum.—J. O. HARPER, Norwich, June 17th., 1852.

Dates of the arrival of the Hirundinidæ in Norfolk, in 1852.—Sand Martins, April 13th., wind S. W. Swallows, April 26th., wind S. Martins, April 27th., wind S. W. Swifts, May 14th., wind S. W.—Idem.

Very many instances are related of the voracity of the Pike, and the group here shown, adds a remarkable example. The two fish were taken in April last, in the "Crystal Colne," (the Duke



of Northumberland's waters,) precisely in the position here represented, and in which they have been excellently preserved by J. Cooper, of Radnor-Street, St. Lukes. The Pike, it will be recollected, is one of the most voracious of fish, and it is said will even eat its own species. It is a strange action of Pike *v.* Pike. The two fish were swimming in the Colne, one with open jaws, into which the other darted, and became transfixed and 'faucibus hæsit,' as we here see it.—Idem.

Occurrence of Vanessa Antiopa.—The following may perhaps interest some of the readers of "The Naturalist." The accuracy of the statement admits of no doubt whatever:—An old friend of mine, a medical gentleman, and lover of entomology, whilst driving in the green lanes near Stoke Newington, had his attention arrested by "Vanessa Antiopa." He alighted and endeavoured to possess himself of it, but having no better instrument than his hat, was obliged after several attempts to give it up sorrowfully. He describes it as a beautiful fresh specimen, with the *yellow* border. I have just shewn this gentleman specimens of *Antiopa* with the *yellow* as well as with the *white* border, and he has no hesitation in stating it to be the specimen with the yellow border. This rencontre took place on Thursday last, the 15th. inst. I intend to visit the exact spot as soon as I have leisure.—BOMBYX ATLAS, Tottenham, July 20th., 1852.

On Vanessa Antiopa.—I believe this insect is generally considered by entomologists as of rare occurrence in this country. I must confess here that I cannot speak from my own experience, never having seen a living specimen in England, that is to say a specimen bred from caterpillars absolutely English. I have, however, bred the perfect insect in this very parish from a caterpillar brought by myself from Switzerland. I had some difficulty in bringing over the caterpillars; they mostly went into chrysalis "en route," and many died from the difficulty of getting quite fresh food; still I have by me several specimens of these very *Antiopa*, but these cannot fairly be called British specimens. The fact, however, that *Vanessa Antiopa* was seen by a professional friend of mine in the green lanes at Stoke Newington, near the residence of the Rev. Mr. A. Clissold; and my friend, who is also a good entomologist, having assured me that he had ample time for observing the insect, (what a pity he had not his entomological instruments as well as his surgical ones by him at the time;) and that it had the rich yellow border and not the pale white one, has induced me to send you a few observations of my own upon this insect. I must first of all state that *Vanessa Antiopa* was seen at the spot already mentioned, on Thursday, the 15th. of this month, August. I shall begin by observing then that the caterpillars of *Antiopa* are gregarious, and in the "Canton de Vaud, Switzerland," may be found in immense families on the summits of the highest branches of the "Salix Caprea." About the latter end of June, or beginning of July, they are generally full grown: they seldom remain

in chrysalis more than eighteen or twenty days. The perfect insect is found the latter end of July, or about the beginning of August. At the second brood the perfect insect may be seen from the end of September to the first fortnight in October; after this period it is only occasionally seen for a short time on very mild days—it then hibernates. Here I must pause just to say that in both these broods the colour of the perfect insect, on escaping from the chrysalis, is precisely the same. I scarcely know how to express this colouring, it appears to me a rich velvety claret black, and the external border a rich pale golden yellow, slightly irrorated with rich claret black; this is sufficient for my purpose, and for obvious reasons I go no further. The insect it appears then hibernates, and remains concealed under the bark of old trees, in the clefts of rocks, under gables of houses, etc.; it there passes the winter in a dormant state, till the warm spring revives its energy. It sometimes becomes so brittle from the intense cold, that if you lay hold of one by its wings, they will snap like glass. *Vanessa Antiopa* is not however aroused from his lethargy so early as some of his congeners. The earliest period I have recorded his appearance is the 3rd. of March, 1846; whereas I have seen *Rhamni* on the wing in January, *Urtice* and *Polychloros* in February, *Io* on the first of March, *C-album* also on the 3rd. of March, and even fair *Cardui* on the 4th. of March. So you see my friend *Antiopa* is rather lazy, but you know large bodies move slowly, and more especially when they consider themselves personages of some note. Now when the sun begins to shine with a certain degree of brilliance, aye, and between the hours of eleven and one, gives a certain degree of heat too. Fancy yourself on the border of some rushing rivulet, which like *Antiopa*, has just begun to feel the influence of Old Sol, say between the middle and latter end of March, you will, if you have chosen a good locality, seldom miss seeing more than one *Antiopa*, soaring anon above the stream, slowly descend on some bit of broken rock, rising just above the flow of the water, expand his noble wings, and thoroughly enjoy himself—a splendid specimen of the wonder-working hand of God. The winter, however, has blanched his golden border, and he appears with one of creamy white, irrorated with bluish claret; the intense richness of his mantle has also faded, and he has become bluish claret. His finely-turned border, owing to its great brittleness and the boldness of his flight, is very much injured. In truth, I have never seen an hibernated *Antiopa* with the external border perfect, and I have heard much older and better entomologists than myself express the same thing. I have a great many specimens, and one in particular wonderfully fine, but I cannot say he is perfectly faultless; of my friends with the yellow border I have a great number quite blameless, as fresh as fresh can be. I could fill up a whole number of your journal with a few only of the freaks of *Vanessa Antiopa*, but I must conclude and subscribe myself BOMBYX ATLAS.

Discovery of Acmæa testudinalis, F. and H.; *Patella* (Lottia) *testudinalis*, Muller, on the coast of Forfarshire.—After reading a communication from J. W., Aberdeen, in page 136, vol. i. of "The Naturalist," my attention was directed to look out for this beautiful shell, in similar situations to that alluded to by your correspondent. Accordingly in the month of April last, in company with my friend Mr. Croall, on a short excursion along the coast, about six miles east from this, and the southern portion of Kincardineshire, we proceeded to examine the projecting rocks off St. Cyrus, at low-water, and were much gratified to find this Shell pretty frequent on smooth water-worn stones. Encouraged with this success, I determined on trying to find it in Forfarshire if possible; consequently having fixed a day for that purpose, the first field for investigation was the projecting rocks between the point of the Ness, at the mouth of our river, and the fishing village of Usan. I left this about eight o'clock, a. m., and while waiting the return of the ferry-boat, which crosses our river to and from the fishing village of Ferrydert, and it being nearly low-water at the time, I looked amongst the stones on the beach at the water-side, and was very much gratified to find six specimens of the shell which I was in search of, (*Acmæa testudinalis*, F. and H.,) and so far as I can ascertain the first ever found in Forfarshire: then crossed the river by the ferry-boat, along with Mr. Brydon, who wished to accompany me that day, and proceeded to the projecting rocks above specified, where we found but a few small specimens. Some days afterwards, being stream tide, I made another search at the water-side, where I found the first six specimens, and have now much pleasure in stating that I found this beautiful shell in considerable abundance. Should any of your readers wish for specimens, I shall be most happy to supply them.—ANDREW KERR, Murray Street, Montrose, August 17th., 1852.

Aemœa testudinalis in Forfarshire.—We have received some very fine specimens of this elegant shell from Andrew Kerr, Esq., of Montrose. This is the second locality on the east coast of Scotland announced in our pages. We have little doubt of its being found also in other favourable localities on the east coast, but these are we believe the only two hitherto known.—B. R. M.

Curious Instinct of the Toad.—In a small bed of radishes, closely covered by a Herring-net to keep off the Sparrows, a large Toad was seated upon its form several days. The Toad changed its position on the bed sometimes, and had two or three forms, like a Hare. It was frequently removed from under the net to distant parts of the garden, but invariably returned to the radish bed; and, though twice as large as the meshes of the net, it was seen on one occasion in the act of creeping through one of the meshes. Having heard a surprising account of the difficulty of banishing a Toad from the place of its choice, the observation of these facts seemed confirmatory of it, and it was resolved by myself and my friends, in whose garden the remarks were made, to put the matter to a severe trial. The garden, which was large, was entirely walled round, excepting a small gate leading into another garden: this garden was also walled round, but there was a single small hole under the outer door into a field. Behind the inner garden wall was a shrubbery, and into this we took the Toad the day before yesterday, little expecting to see it again; but to our surprise it was seated the next day beneath the net on

one of its forms. To reach that place it must have gone through the fence of the shrubbery into a field, then through another fence into a second field, next through the hole under the outer garden door, and lastly through the gate into the inner garden. This well-authenticated fact so fully confirms a curious story related to me by an elderly relative many years ago, that I would suggest this habit of the Toad as an interesting subject of further observation.—WILLIAM WHYTEHEAD, Risley, Suffolk, June 21st., 1852.

Review.

The Natural History of Porthead; Comprising a Guide to the Locality, with an Appendix, containing an Ornithological, Entomological, and Botanical Catalogue for the Neighbourhood; with a Coloured Geological Map of the District. By JOHN N. DUCK. Bristol: EVANS AND ABBOT, 1852. p.p. 65.

WE have before adverted to the value of carefully-compiled local Floras and Faunas, more particularly as relates to the development of Geographical Natural History; and in the very unpretending little work before us we have another of those small, but not on that account less valuable, rivulets which assist in swelling the great river of Natural History. Mr. Duck enters on his work, very properly, by giving a description of the locality and its neighbourhood; and this portion of the book will be valuable, not only to the naturalist, but also to the tourist, who may be in search of the picturesque.

The portion of the work devoted to Natural History then follows, and embraces notices of a few of the Mammalia, some of the peculiarities of birds, reptiles, fishes, insects, and polypi, and concludes with some interesting facts in Botany and Geology. The last few pages are devoted to lists of the birds, insects, and plants, which the author has met with. These lists although limited in length, are of much value from the fact of every species having appended to it the time of its occurrence, the locality of its capture, and its comparative rarity, or the reverse. No doubt these lists may be greatly added to, but Mr. Duck has done well to make the beginning, and we trust that those who follow up his researches will be as particular as he has been in noting the dates and the localities. These facts always make lists valuable; indeed without them they are comparatively worthless.

We shall be very glad if this short notice of the "Natural History of Portshead," should assist in the sale of the work, and in any way benefit, we believe, a very deserving man. We are much pleased to observe that Mr. Duck has done what he could to preserve the connexion between religion and Natural History.

Proceedings of Societies.

Yorkshire Naturalists' Club, Monthly Meeting, October 6th., 1852.—T. HORNEY, Esq., of Pocklington, in the Chair.

On the subject of the alleged transmutation of oats into barley, MR. SMALLWOOD reported that the oats he had sown had not outlived the winter.

MR. BAINES also reported that his plants had shared the same fate; but also mentioned that a friend of his, at Holtby, who had cut down his unripe oats in autumn, about three years ago, the next year had a crop, without any sowing, of what was somewhat like barley.

MR. WHYTEHEAD said that he had seen some oats this year, at Tang Hall, which had been planted and treated with a view to carry out these experiments, which had lived over the winter, but produced only oats.

MR. HORSFALL, of Calverley House, near Leeds, exhibited a fine specimen of the Spotted Rail, (*Crex porzana*,) shot lately near his house.

MR. GRAHAM exhibited a Tern, which he believed to be the young of the Whiskered Tern, shot at Sutton-on-Derwent, and sent for preservation by the Rev. G. Read.

The Hon. and Rev. S. LAWLEY exhibited a female Sparrow Hawk, shot at Escrick, of an unusually large size.

H. CHOLMELEY, Esq., of Brandsby, exhibited a variety of the Partridge, which had the wings nearly all white.

MR. GRAHAM showed a fine Death's Head Hawk Moth, (*Sphinx Atropos*,) which he had captured in a barge near Ouse bridge.

MR. BAINES showed the eggs of some large moth, deposited on a laurel twig.

MR. MOORE exhibited a curious Fungus, (*Phallus impudicus*,) in all the stages of its growth; and his account of it was received with much interest by the members present.

The Rev. R. WOOD, of Woodhall Park, sent for exhibition several specimens of another rare fungus, obtained under mountain limestone, of a large size, and in all stages of development. It proved to be a *Geaster*, allied to *G. collegens*, and *G. Hygrometricus*, but distinct from either, and probably new.

DR. MORRIS showed a beautiful drawing of a curious variety of the Yellow Hammer, which had been shot by G. Donaldson, Esq., on the island of Gometra, near Staffa, in August last. In colour it exactly resembled a Canary. He also exhibited some remarkably fine specimens of *Aemva testudinalis*, which he had received from A. Kerr, Esq., of Montrose, taken on the shore

there. Also a box of *Lepidoptera*, *Coleoptera*, and *Crustacea*, taken by himself at Redcar this summer.

MR. WHYTEHEAD told a very interesting anecdote of the difficulty of banishing a toad from the place of its choice, and several other curious particulars in the history of this animal were related by Mr. Baines, Mr. E. Allen, and others.

THE SECRETARY read an extremely interesting letter, which Mr. Baines had received from Mr. Spruce, who is now collecting objects in natural history on the Amazon, and who was, some years ago, well known in York, as a most industrious botanist.

MR. BOND, of Middleton Lodge, exhibited a very formidable pair of jaws of a Shark, the *Squalus galeus*.

THE HON. CAPT. LAWLEY exhibited a fine series of foreign specimens of the following English birds, which he had collected while in the Mediterranean, namely:—Specimens of the Night Heron, in the three different states of plumage; the Glossy Ibis; the Avocet; the Little Bittern; the Great Bittern; the Common Egret; the Roller; the Bee-Eater; the Gull-billed Tern; the Pratincole; the Greenshank; the Land Rail; the Hoopoe; the Golden Oriole; and a fine specimen of the Pine Martin.

Entomological Society, October 4th.—J. O. WESTWOOD, Esq., President, in the Chair.

This meeting, by permission of the Zoological Society, was held at their house—the new meeting room at No. 12, Bedford Row, to which house the Entomological Society has removed, not being ready.

MR. WALLACE, who has been collecting objects of natural history in South America for several years, and who has lost the whole of his valuable collection by the burning at sea of the ship in which he was bringing them home, was present as a visitor.

C. G. PICKERSGILL, Esq., was elected a member, and W. QUIN, Esq. and R. SHIELD, Esq., were elected subscribers to the society.

MR. BOND exhibited larvæ of *Anticlea Berberata*, from Cambridgeshire—a rare moth, of which the caterpillars feed on the leaves of the barberry.

MR. WEIR exhibited *Coleophora deauratella*, from Tunbridge Wells.

MR. EDWIN SHEPHERD exhibited a box of rare and fine species of *Lepidoptera* from the neighbourhood of Dover, including the beautiful *Vanessa Antiopa*.

MR. STEVENS exhibited another specimen of this scarce butterfly, lately taken at Hampstead; and mention was made of several others having been recently seen in various places.

MR. HUNTER brought for distribution many specimens of *Mononychus Pseudacori*, found feeding on the seeds of *Iris foetidissima*, in the Isle of Wight.

MR. DOUGLAS exhibited bred specimens of *Elachista testacella* and *Roslerstammia pygmaea*, both rare insects.

MR. HUNTER mentioned that he had found pieces of rag, soaked in sugar and water, and hung on bushes at night, very attractive to moths, and very convenient in districts where there were no trees on which to put the mixture.

THE SECRETARY read a paper on the identification of the insects mentioned in the "Memoirs" of Reaumur and De Geer, illustrated by living larvæ mining in leaves of various plants; also some observations on the *Groo-groo* worm of the West Indies, and the method of capture of this insect-larva, which is used as food, and accounted a great delicacy by the planters.

The Querist.

In some of the newspapers there has been a mention of a new weed that has appeared in our rivers; particularly the Cam, Ouse, and Trent. Will some of your botanical correspondents favour your readers with an account of this weed, its supposed origin, and its affinities. If the accounts in the newspapers are correct, there seems no small danger of the navigation being seriously impeded. Any hint as to an effectual mode of getting rid of it, would therefore be read with much interest. Some of our canals may easily be filled with sea-water, which possibly might have the desired effect; but this applies to a very small portion of our inland navigation.—W. WALDO COOPER, West Rasen Rectory, September 20th., 1852.

FLORA OF THE MEADOWS OF THE PROVINCE OF ORAN.

(Continued from page 245.)

WE proceed to consider the species of the family of Leguminous plants, which produce the richness, and I may also say the superiority, of the hay of Algeria over that of Europe.

ASTRAGALUS.—This genus affords a considerable number of species, which are found in almost all the meadows, but which, on account of their small size, enter but little into the composition of hay. The most remarkable species are the *A. BÆTICUS*, *A. HAMOSUS*, *A. FALCATUS*, *A. CAPRINUS*, and *A. PENTAGLOTTIS*.

BISERRULA.—This genus consists of but one species, the *B. PELERINUS*, which is very common in the pastures about Oran. It is only a few inches in height, and although the leaves are readily eaten by cattle, the plant is too small to be an object of any interest.

ERVUM.—This genus, which includes the cultivated Lentil, affords us the *E. hirsutum*, *E. tetraspermum*, *E. VICIODES*, and *E. LENTOIDES*.

HEDYSARUM.—The Saint foin is the product of *H. onobrychis*, which I have never seen in Africa, either wild or cultivated. We have however other species of this genus which are more productive than the Saint foin; I allude to *H. CORONARIUM*—a beautiful plant, which attains the height of above six feet (deux mètres,) and the stalks of which equal the little finger in thickness. An allied species, the *H. FLEXUOSUM*, has been distributed this year by the prefect of Oran, to the husbandmen of the province, under the name of the Saint foin of Maroc. It grows naturally in many localities of the province, particularly in the forest of Muley-Ismaël, on the road to Mascara. The other species of this genus are *H. CAPITATUM*, *H. FONTANESII*, *H. CAPUT GALLI*, and *H. FLEXUOSUM*.

HIPPOCREPIS.—The species of this genus are too small to merit the notice of the agriculturist. They are the *H. UNISILIQUOSA*, *H. MULTISILIQUOSA*, and *H. CILIATA*.

LATHYRUS.—All the species of this genus are very nutritious to cattle. We have the *L. aphaca*, *L. CICERA*, *L. CLYMENUS*, *L. OCHRUS*, *L. sylvestris*, and *L. SATIVUS*; this last plant is cultivated under the Spanish name of *jijas*, in French *gesse*.

LOTUS.—This genus furnishes a host of species which are found in almost all meadows, but which do not produce a great amount of hay; such as the *L. TETRAGONOLOBUS*, *L. EDULIS*, *L. CONIMBRICENSIS*, *L. ORNITHOPODIODES*, and *L. CRETICUS*.

LUPINUS.—We have three species of Lupines, which are the *L. HIRSUTUS*, *L. ANGUSTIFOLIUS*, and the *L. LUTEUS*.

MEDICAGO.—This is the genus which makes the richness of the meadows of Algeria; the species is known under the name of Trefoil, but the true

Trefoils are rare in Algeria. The commonest species are *M. orbicularis*, *M. helix*, *M. scutellata*, *M. turbinata*, *M. tribuloides*, *M. arabica*, *M. intertexta*, *M. echinus*, *M. minima*. Lucerne, (*M. sativa*,) is also a plant of this genus; it does not occur native in Algeria, but it succeeds everywhere where it has been cultivated.

MELILOTUS.—This genus includes *M. officinalis*, *M. parviflora*, *M. italica*, *M. cretica*, *M. sulcata*, and *M. messanensis*. They all afford a nutritious fodder, but in no great quantity.

ONONIS.—This genus affords several species, which are refused by cattle.

ORNITHOPUS.—We have the *O. compressus*, *O. scorpioides*, and *O. erractatus*: these species are of no importance. One species of this genus, the *O. sativus* is cultivated as fodder in Portugal.

OROBUS.—The *O. atropurpureus* is common in the moist meadows of the Mitidja, but I have not found it at Oran: it affords excellent nourishment.

PHACA.—We have only a single species of this genus, the *P. betica*, which is rather a plant of ornament than usefulness: goats eat it greedily.

PISUM.—The *P. sativum*, is the cultivated pea of the gardens. It is found native in some localities, but in too small quantity to be an object of any importance.

SCORPIURUS.—The *S. vermiculata*, *S. muricata*, and *S. sulcata* are found in abundance in all the natural meadows of the province, and furnish an excellent fodder.

TRIFOLIUM.—This genus consists of a great number of species, but it enters but little into the composition of the indigenous hay. The *T. pratense*, so commonly cultivated in Europe, occurs native in the meadows of the Mitidja, but in small quantity. The other species affording fodder are the *T. procumbens*, *T. elegans*, *T. isthmocarpum*, *T. glomeratum*, *T. resupinatum*, and *T. spumosum*; but not any of these species are deserving of extensive cultivation. The cultivation of *T. incarnatum*, or *farouche*, has been tried in the neighbourhood of Oran, especially at the small lake of the Sénia, by M. Pechenet, but the results are far from being encouraging. From conversation which I had with M. de Thury, it would appear that at Arbal, on the contrary, they were perfectly satisfied with its culture.

TRIGONELLA.—This genus affords us some small species which are of little importance.

VICIA.—The species of this genus, which includes the cultivated Vetch, are the *V. polyphylla*, *V. atropurpurea*, *V. sativa*, *V. lutea*, *V. hybrida*, *V. bithynica*, *V. biflora*, and *V. narbonensis*. They all afford a very nutritious fodder. The cultivation of the Vetch, (*Tarcs*,) has been tried in the neighbourhood of Oran, but with little success.

In a future article we shall consider the fodder plants included in the great family COMPOSITE.

G. MUNBY.

(Extracted from "L'ECHO D'ORAN," Saturday, June 19th., 1852.)

(To be continued.)

NOTES ON THE LEPIDOPTERA OF THE WEST OF SCOTLAND AND FIFESHIRE.

BY JOHN GRAY, ESQ.

(Concluded from page 15.)

IN giving a few additional remarks on the entomological fauna of this portion of our island, we have been enabled to introduce a few species which have recently come under our observation; the occurrence of which plainly indicates the existence of other interesting kinds, which have but to be carefully sought after, ere they become recognised denizens of the west; a field of inquiry in which our aim has been to act as a sort of pioneer, and incite others to more extended researches.

We have been much gratified at noticing in these pages, since the publication of our last notes, a paper on the Lepidoptera of Midlothian, by Messrs. Lowe and Logan—we only wish the geographical limits had been more extended; however we hope it is merely a precursor of many such local lists towards the elucidation of the geographical distribution of our insect fauna. The species enumerated in our own notes, with few exceptions, are such as have fallen under our notice in the various localities mentioned, oftimes when engaged in other branches of this delightful science. In depending however, too much upon information conveyed to us we are afraid that the insertion of *Melitæa Cinxia* in a former paper, was a mistake; the remarks on that species we have now reason to suspect apply to *M. Artemis*. In our last paper the notice of *Crambus radiellus* must also be deleted, as we find, on comparing a series of specimens recently sent us for examination, that they quite agree with the description of *Phalæna margaritella* in "Fabricius' Mant: ins., ii., 243.

Many varieties of the smaller Lepidoptera have occurred in the course of our rambles, which we hesitate to introduce into such a paper as this; chiefly on account of our unwillingness to attach much importance to those trivial differences and airy distinctions, which some entomologists delight to elevate into the rank of specific characters.

Amongst the *Diurna*, the most interesting addition we have to make, is *Colias Edusa*, a specimen of which was sent us for examination captured near Largs, about the middle of September last. It was a male, and from its freshness and beauty of colour, had evidently newly emerged from the pupa state.

Hipparchia cassiope occurs in several localities on the highland mountains of the West coast.

This past summer seems to have been a most propitious one for our native butterflies; the commonest kinds teemed everywhere in surpassing abundance. *Vanessa Atalanta* occurred throughout the district in a profusion we never before witnessed: the striking appearance of the insect on the wing attracting the notice of many careless observers. *Hipparchia Blandina*, too, appeared in the highland districts along the Frith of Clyde literally in thousands; whilst

Argynnis Aglaia flitted about in the same localities in countless numbers. This periodical appearance of these insects—periodical at least in respect of numbers, is a curious subject of inquiry; a question however which we suspect is more easily raised than satisfactorily answered.

Macroglossa stellatarum, as a native of this district, is by no means common. The larva may be occasionally met with feeding in company with that of *D. Porcellus* on *Galium verum*, generally not far from the coast: we have found however much difficulty in rearing the species.

Besides the specimen of *Deilephila Livornica* in our cabinet, which we formerly mentioned under the name of *lineata*, as having been captured near Glasgow, a second specimen was taken in a garden in the spring of this year, near Falkirk: that it had survived the winter was evident from its much faded condition and time of appearance. These captures almost induce the idea that the species is not a straggling visitant merely, but really indigenous to this district of the country.

Several additional species of *Bombycidae* have recently occurred, which we gladly rank amongst our district fauna. Of these perhaps the most interesting is *Dasychira fascelina*, an insect not very uncommon in the larva state in several localities near the Frith of Clyde. We have also received specimens from Fifeshire and elsewhere. The caterpillar of this species has always been with us an object of much admiration, from its rich tufted livery. It has been no less a favourite too, with entomological iconographers, if we may judge from the numerous figures which we met with whilst tracing out the original descriptions of the species in the works of the older entomologists, from the rough wood-cuts of Mouffet down to the beautiful delineations of Sepp, in those admirable plates of the insects of the low countries.

Episema cæruleocephala is far from rare in many localities in this district.

Clostera reclusa has also occurred lately in its previously known locality near the Frith of Clyde.

Cerura furcula has occurred in this part of the country in considerable numbers during this past summer. We have in our cabinet a somewhat lengthy series, exhibiting all shades of variety in the dark bands of the fore wings; the first nervure of the hind wings in the male appears always to be slightly, whilst in the female it is more or less deeply, forked; the only exception to this rule which we have yet met with in our district specimens, is that of a very dark variety of a female with the first neuration of the hind wings simple.

Drepana fulcataria, as a Scottish species is scarce, but has occurred sparingly in Fifeshire, and elsewhere.

Some few species of *Noctuae* have recently come under our notice, which appear to be very generally distributed over the west of Scotland. Such are *N. Putris*, *dentina*, *Menyanthidis*, and *renigera*; the latter, which we take to be *N. cataleuca* of some authors, is generally found in rocky glens, etc.; the neighbourhood of Campsie and the Isle of Arran may be mentioned as localities.

Orthosia macilenta and *rubricosa* both occur in woody places; the latter along with *O. gracilis*, was taken in abundance in Argyleshire by Mr. Buxton.

Triphaena fimbria is rarely met with; we are only aware of its occurring in the Isle of Bute.

Plastenis subtusa occurs in the vicinity of Ayr.

We have but few additions to mention amongst the geometrine moths—*Himera pennaria* and *Zerene rubiginata*, are all that we have lately noticed as new to this district. These species do not appear to be common.

Such are a few features in the Lepidopterous fauna of the west of Scotland, which however faulty as exhibiting anything like a complete catalogue, may still be worthy of attentive perusal by the student of the geographical distribution of the insect world; and while we now take leave of this interesting branch of Scottish Entomology, it only remains to suggest a few hints as to the utility—the legitimate use of local investigations. Any remarks on this subject, the proper estimation of which we have so much at heart, we feel can only be addressed to the naturalist, for by him alone can they be understood; with mere collectors we have nothing in common, however much we wish their labours were turned to the permanent good of science.

The first, and indeed the great use of investigating local fauna, consists in giving the student of nature a knowledge of the range of species, and what we may term their positions of locality. At page 208 of the present volume of this magazine, we observe a query by a correspondent, whether the insects of Guernsey, etc., ought to be considered British; such a question we had never noticed, and far less answered, had a reply not served to illustrate the subject under our notice.

A fundamental error with the majority of local faunists consists in their limiting their observations within the capricious boundaries of counties or nations. This would be so far well, if it were intended merely as a step towards the elucidation of the entire natural range; but how seldom is this the case, how rarely do we find their interest in the subject extended to nature's own boundaries. Let the unprejudiced naturalist take a glance at those entomological cabinets devoted exclusively to British species, and he will quickly discover what a precious jumble is there made in geographical distribution. In such collections he will find two if not three distinct ranges of distribution, illustrated by species taken within the British Isles forming an arrangement to the entire exclusion of such as occur in the remaining portions of the same sphere of natural habitats. The only interest to the naturalist in such collections would consist in their elucidation of geographical character; this they do not possess; whilst as a systematic arrangement, the defects are still more apparent; thus leaving an impression on the mind that such arrangements could only have been dictated by the most capricious absurdity.

If such entomologists *must* have an arrangement of local fauna, let them study nature's geography, and act accordingly. Let them, if they will, separate the Alpine fauna of the north from that of England, and study it in its

course through Norway and Sweden, and other Alpine districts of the continent, but by no means attempt to arrange it along with the productions of England, which, to be properly understood, must go hand in hand with the fauna of most parts of temperate Europe. The fauna of Ireland too, might well be separated from that of Great Britain, as possessing features of a very peculiar and oftentimes anomalous kind, with which every naturalist is familiar, and on that account need not here be dwelt upon.

But collections of local fauna can never be arranged in a natural manner without some degree of confusion resulting from the difficulty of determining the real position of many widely-distributed species; rather let the naturalist consign his theories of local and geographical distribution to his note-book, along with any remarks on the habits and economy of the objects of his study, with which indeed all such theories are inseparably connected. These observations sufficiently answer the before-mentioned query with respect to Guernsey insects, a fauna which, in common with the productions of many districts of the continent, cannot be separated from that of England without doing violence to those interesting and beautiful laws of distribution which, with every true entomologist, are a field for enticing investigation—a source of inviting inquiry. Viewed however in the unnatural light which guides the purely British collector, such insects would only be considered as intruders, not having been fortunate enough to be captured within the magic circle of Great Britain and Ireland! This doubtless will be the response of the ‘authority’ to which the querist alludes; but let him, with ourselves, appeal to the only authority in such cases which the naturalist knows—the authority of nature; for of a truth, “nunquam aliud natura aliud sapientia dicit.”

Another use in the investigation of local fauna consists in the facility thus afforded of noticing the peculiarities, and oftentimes anomalies, which species exhibit in the selection of their habitats. This can only be attained by a patient tracing of the habits of the species, as shown in various localities; a subject on which our notes have swelled to some extent, but on which at present we refrain from enlarging.

Thus it will be seen that local notes in the natural history of animal life have their distinct sphere of usefulness, when viewed as a link or step towards a proper understanding of the economy of nature; but when looked upon as a topic of exclusive interest, far better would it have been had they never been penned. We know not how far our feelings in these and former remarks have been shared in by the entomological readers of “The Naturalist,” but glad should we be if they have had the effect of arousing inquiry and careful study of the truths of nature in any. Then instead of the insipid “lists of captures,” and “curious facts,” worthless in themselves, and sometimes not free from vulgarity, which adorn the pages of some magazines of natural history, we might hope to see observations made, and conclusions arrived at, of permanent value; a bright contrast to the episodes of “strolling” dabbles, whose effusions, whilst offensive to the eye, are alike beneath our criticism and contempt.

Glasgow, October, 1852.

CAPTURES OF LEPIDOPTERA.

BY ROBERT S. EDLESTON, ESQ.

IN April, at Prestwick Wood, I captured *Talæporia inconspicuellæ*, Stainton, in great abundance: this is a distinct species.

In June, two of our collectors visited "Burnt Wood," near the Whitmore Station, Staffordshire, and captured *Melitæa Athalia* in abundance, and several specimens of *Eucosmia undularia*, *Macaria notataria*, and *Hypena crassalis*.

At the end of June, Bleackley made an excursion of ten days to Brockenhurst, in the New Forest, and captured at Sugar upwards of three hundred *Mythimna Turca*, two hundred *Cleoceris* 00, and two *Diphthera Orion*. On the bole of an oak he captured a fine ♀ of *Heterogena asellus*; the larvæ of *Lithosia quadra* exceedingly numerous, spinning their cocoons on the oaks; also a few of *Psilura monacha*.

On the New Brighton and Lytham coasts, a great number of the larvæ of *Lasiocampa Trifolii* were taken in the evening, feeding upon star grass; some two or three hundred Moths have been reared: the virgin ♀ attracts the males in abundance at night. *Leucania titoralis* is exceedingly abundant on these coasts, and *Actebia precox* not uncommon.

Gortyna Petasitis occurred last month in this neighbourhood in great plenty; the Moths are taken on the wing at dusk, in places where *Tussilago Petasites*, (butter bur,) abounds; *Heliophobus popularis* and *Charæas cespitis* were also captured. On the moors near Bolton, *Cidaria Erutaria* occurs in plenty, resting on the stone walls.

Epunda lichenea is most abundant at Lytham; they are captured soon after dusk, by examining the dead branches of furze bushes with a lantern, and are almost invariably found on the lowest branches.

At Chesterfield, *Pterophorus osteodactylus*, *Lampronia luzella*, and *Semioscopsis Avellanella*, are not rare.

During a recent visit by Herr Zeller to my friend Mr. H. Doubleday, he kindly submitted to him drawings of a Noctua in my cabinet, named in London as *ruticilla*. Zeller says it is not that species, and at present unnamed. He possesses a specimen of his own capturing, a charming *Tinea*, which has been in my cabinet some time, under the manuscript name of *Elegantella*, which he recognised as the *Tinea Riganella* Lodoffsky described in the "Moscow Natural History Magazine" in 1830.

Cucullia Chamomillæ: a few specimens of this rare insect were taken in April last by Dr. Nelson and Mr. Gregson in the neighbourhood of Lytham, resting on palings near fruit trees. Next season will no doubt make it a common insect, a fate to which many rare species have recently fallen.

Barrow Hill, Strangeways, Manchester, September 3rd., 1852.

OCCURRENCE OF
SOME OF THE RARER BRITISH MAMMALIA, BIRDS,
INSECTS, &c., NEAR ALVERSTOKE, HANTS.

BY MRS. MARY ADAMS.

THE following notice of a few rather uncommon animals as observed by me in this locality, (Alverstoke, Hants,) during the summers of 1851-52, may not be uninteresting to some of the readers of "The Naturalist:"—

An old English Black Rat, (*Mus rattus*,) was watched towards evening playing about the mouth of a drain in Stokes Bay.

A Field Vole, (*Arvicola agrestis*,) was rescued from the claws of a Weasel, not however in time to save its life, in a lane between Grange and Rowner.

A specimen of the rare Shrew, (*Sorex remifer*,) was captured in a wheat field near Stoke village, with the mark near the ear very white and conspicuous.

The Black Cap, (*Curruca atricapilla*,) and Nuthatch, (*Sitta Europæa*,) paid frequent visits to the apple and damson trees in the garden this autumn.

Odynerus spinipes, a beautiful Wasp, forms projecting tubular porticoes to its nest in the banks along Brown Down.

Eumenes coarctata, another handsome Wasp, forms a cluster of several red clay huts, and builds in the furze bushes in the same locality.

Celioxys Vectis, a sharp-tailed banded Bee, whose specific name implies its usual locality, is not uncommon along the shores opposite the Isle of Wight, and builds in the banks about here.

Dasypoda hirtipes, a curious Bee with very hairy hind legs, nearly peculiar to the Undercliff, (I. W.,) has thrice been found "straying in leafy bowers" near Brown Down.

Two specimens of the apterous female of the beautiful hymenopterous insect *Mutilla Europæa*, were taken crawling on the sandy banks of Brown Down.

A swarm of Honey Bees, (*Apis mellifica*,) constructed a large double comb of dazzling white wax, suspended in a bush near the coast.

The large Black Spiny Fly, (*Echinomyia grossa*,) was twice taken by myself and husband hovering near the heads of *Umbelliferae*.

Three specimens of the Clouded Yellow Butterfly, (*Colias Edusa*,) were taken on the wing at Brown Down, August, 1851; their flight is low, steady, and tolerably rapid.

Three specimens of *Drypta emarginata*, a rare and lovely green Beetle, were found in a bean field near Stokes Bay; and *Ægialia globosa* and *Pedinus femoralis* were captured in sandy places in Hayling Island.

Knapp's Green, Alverstoke, Hants, September 13th., 1852.

ON A NEW INSECT, A PARASITE ON THE SYCAMORE.

BY THOMAS P. FERNIE, ESQ.



INSECT GREATLY MAGNIFIED.

THIS curious insect, which I have named provisionally *Phyllophora testudinacea*, occurs in this neighbourhood, on both sides, but especially the upper, of the leaves of the sycamore, (*Acer compestre*,) evidently feeding upon its juices. It casts its skin while in the *pupa* state, which is that in which it is now found. In the complete insect two bristles appear to take the place of each of the leafy appendages with which the sides of the abdomen are fringed.

I have recently found it, somewhat sparingly, on the leaves of *Acer pseudo-platanus*. Having from observation some reason to think it may prove *local* in its distribution, I shall have much pleasure in sending a leaf with the insect on it, to any person who may be desirous of possessing it, and has not been able to find it. I have mounted a few for the microscope, which may perhaps prove an acceptable medium for exchange.

Kimbolton, July 10th., 1852.

LOCAL JOTTINGS.—No. 6.
DORCHESTER—DORSETSHIRE.

BY JOHN GARLAND, ESQ.

The Hermit Crab, (*Pagurus*).—This wonderful little tenant of our shores I so seldom see any mention of in my readings, that I cannot help thinking a short account of such an interesting animal may be acceptable to the readers of "The Naturalist."

They are called Soldier Crabs, or Hermit Crabs, from their taking up their abodes in empty shells, but of what kind they may happen to be they are not particular—either turbate or truncated. The appearance of the little Crab peering forth from its borrowed dwelling is very peculiar, the large projecting eyes, the legs, and the claws, being only visible. The abdominal portion of the body is without that hard shell of the fore parts and of the other kinds of Crab, and they look out for empty shells of the size best suited to their bodies, and take possession of them, seeking for their prey, and retiring within the shells again at the least approach of danger. They feed on any animal matter they can find on the shores and shallows of the coast. They hold on in the inside of the shell with some of their small legs, and with great comparative power. As their bodies increase in size they look out for larger shells, and most amusing is it to see one of them twining over a shell, and then, doubtful if it will suit him as a residence, going to another until he meets with one which he fancies, and very prudently never leaving the old one until he has found such new tenement—perhaps a shell of a different description. It is also most comical to see them dragging their domiciles about with them, and with their claws, one of which is larger than the other, seeking for food or defending any attacks made on them by other fish. What a wonderful instinct this is! and how remarkably it shows forth the wisdom and care of the Creator for his creatures.

The Peninsula, commonly called the "Island of Portland," near Weymouth, is a most interesting, though little known, locality for naturalists. In the West Bay, the north-western part of the island, and on the Chesil Beach they are found in abundance, and constantly taken up by the fisherman in the lobster and crab pots. On the coast of Sussex too they are plentiful, and I doubt not on most other parts of the shores of Great Britain. I have a specimen taken at Hastings in a whelk shell, and well preserved by a person who deals in objects of Natural History on the esplanade in that town, and several other specimens which I have found in this neighbourhood.

The Rook.—At the pretty village of Upwey, where I am staying, there is a very large Rookery at the back of a mill, and underneath a lofty range of hills, on the opposite side of which is another high range of hills forming the valley in which this lovely, favourite, and healthy village is situated. I remark in the mornings from six to seven o'clock, and in the evenings about seven, an extraordinary commotion amongst the feathered occupants of the

Rookery. In the morning they fly out of the trees with great noise, pitch on the hills, then separate in small parties and go forth, I imagine, on their feeding expeditions. In the evening these parties come in again, assemble separately at first, then all with great noise unite on one of the sides of the hills, and after no very lengthened period, during which they wait for all the separate parties to come in, all again retire to the trees and are gradually silent. I have observed that the form the final meeting of the Rooks assumes on the hill is that of a very large semicircle. Ignorant if this jotting be worth inserting or not, I send it; at all events it strikes me as singular.

September 10th., 1852.

GLEANINGS FROM MY NOTE BOOK.—No. 2.

BY J. MC'INTOSH, ESQ.

The Waking of Birds in the morning from the month of May to July.—The Chaffinch, (*Fringilla coelebs*), commences its notes from one to half-past one in the morning; the Great Black-headed Tomtit, (*Parus major*), from two to three; the Quail, (*Coturnix vulgaris*), from half-past two to three; the Blackbird, (*Turdus merula*), from half-past three to four; the Thrush, (*Turdus musicus*), about three o'clock; the Nightingale, (*Philomela lusciniæ*), from three to half-past four; the House Sparrow, (*Passer domesticus*), from five to half-past five. The principal cause of the waking up of the different species of birds arises from the necessity of providing food for their young, which is more abundantly found at early morning than mid-day. The period of feeding having passed, the general time of rising with most species is a little before sunrise; yet they are frequently to be found "napping" during the heat of the day.

Heronry on Windermere.—The Westmorland Gazette informs us that a pair of Herons have built their nest on Ramp's Holme, or Berkshire Island, between the Ferry Hotel and Storro Hall, the property of the Hon. Mrs. Howard, of Levens Hall. While recording this addition to our list of Heronries at page 60, vol. i. of "The Naturalist," allow me to return my most sincere thanks to those gentlemen who have responded to my inquiries for information on this subject.

Birds' Nests found in August, 1851.—Hedge Sparrow, with eggs and young; Goldfinch, with young—this nest was placed on the branch of a standard apple tree in an orchard; Song Thrush, with young, in a small spruce fir tree—this nest was remarkably slender; the Robin, with eggs, at the bottom of a field hedge; Whitethroat, with young, and one with eggs. The above birds' nests were found by myself during the month of August, in the county of Dorset. We shall have more to say on this subject in a future number.

Nidification of Birds in a Bottle for Seventy-three consecutive years.—"So far back as the year 1779, a pair of Blue Tits built their nest and brought up their young in a large stone bottle, which had been left to drain on the

lower branches of a plum tree, fronting the farm-house, near Stockton-upon-Tees, now occupied by Mr. Callender. During the above period, with the exception of one year, this bottle has been annually tenanted by these little gay-plumaged birds. About thirty years ago, the old plum tree, upon whose boughs the bottle was first placed, having fallen into a state of decay, the bottle was placed upon the branches of an adjoining tree, to which it is now fastened by iron hoops. The birds did not, however, desert their favourite tenement. Last year, 1851, they made their appearance as usual, but the inmates of the farm-house having neglected to draw the previous year's nest out of it, the birds were obliged to seek other quarters. This year, 1852, they have again built in their old residence." Will our Stockton-upon-Tees readers be so kind as to ascertain the truth of the above, and record the same in the pages of "The Naturalist," as we have quoted the same from a newspaper paragraph?

Cochineal.—We are informed upon good authority that every pound weight of Cochineal contains seventy thousand insects broiled to death; so that the annual sacrifice of insect life to procure our scarlet crimson dyes amounts to about forty-nine millions of these small members of the creation.

No. 5, Middle-Street, Taunton, Somerset, September 12th., 1852.

AUGUST.

BY C. MILLER, ESQ.

AT this season of the year, when many a falling leaf heralds the approach of Autumn, when the trees here and there assume a faint russet tint, the peaceful walk of the naturalist teems with interest. "The insect that crawls, the note of the bird, the plant that flowers, or the vernal green leaf that peeps out, engages his attention, is recognised as an intimate, or noted for some novelty that it presents in sound or aspect. Every season has its peculiar products, and is pleasing or admirable from causes that variously affect our different temperaments or dispositions; but there are accompaniments in an autumnal morning's woodland walk, that call for all our notice and admiration; the peculiar feeling of the air, and the solemn grandeur of the scene around us dispose the mind to contemplation and remark."

The contemplation of nature elevates our ideas, and stores our minds with a knowledge which, though slowly acquired, when once implanted, flourishes, and by degrees takes the place of other and more worldly thoughts: we gaze round on nature's varied and endless kingdom, and our hearts fill with silent praise at her wonderful and admirable products. But of all those products, flowers perhaps are the most dear to us—flowers, as some one has observed, are the soul of nature, they bring warm gushing memories back to the heart, become inseparably connected with the scenes of our youth, and remind us of

"Happy hours and days flown by,"

when no care had furrowed our brows, or thought of the future disturbed the tenour of our lives.

August, with its flowers and fruits, wears a rich and plenteous aspect; the brown corn, now ready for the sickle, is waving over the field, the broad and leafy branches of the trees afford a shade to the tired cattle, the golden cones of the hop are twining round the tall poles, and the orchard trees are laden with ruddy fruits. The flowers look gay and brilliant, for Autumn flowers are mostly yellow, and they seem to cluster in such abundance that none would suspect they are far fewer in variety than in the preceding months; perhaps twice the number of species might be found by the botanist during the month of June than he could find now, and though many summer blossoms still linger, yet those strictly peculiar to August are comparatively so few, that we can but remark the year is making rapid progress to its close.

The hedges and meadows are now blue with the heads of that pretty flower, the Pasture Scabious, (*Scabiosa succisa*,) and on dry banks and walls the Snap Dragon, (*Antirrhinum majus*,) still blooms. All the varieties of the Snap Dragon have the power of maintaining a state of vegetation in great droughts, when most other plants yield to the influence of the weather; and it is the more remarkable in these plants as the places in which they chiefly delight to vegetate are particularly exposed to the influence of the sun. The same may be said of the Burnet, (*Poterium sanguisorba*,) another common plant that flowers at this time. From the Wild Thyme, (*Thymus serpyllum*,) on the chalky bank comes a delightful fragrance, scenting the wandering gale; here too are the bright blue blossoms and bristly stems of the Viper's Bugloss, (*Echium vulgare*,) Yellow Toad Flax, called in the country butter and eggs; Wild Mignonette, (*Reseda luteola*;) and Bitter Wood Sage, (*Teucrium scorodonia*.) In the clear brook the pure white flowers of the Water Arrowhead, (*Sagittaria sagittifolia*,) may now be found emerging from among their shining green leaves, from the shape of which the plant probably derives its name; here also the Golden Rod, (*Solidago virgaurea*,) opens its yellow blossoms, with the pale blue Forget-me-not, (*Myosotis arvensis*;) the various kinds of Mint, (*Mentha*,) and Comfrey, (*Symphytum officinale*,) with its rough leaves and pale yellowish bells still flowers. The climbing Dogwood, (*Cornus sanguinea*,) flowers in the hedge, with the starry blossoms of the St. John's Wort; the Greater Bindweed, (*Calystegia sepium*,) Woundwort, (*Stachys sylvatica*,) and Purple Nightshade, whose bright red berries have so often tempted us in our youthful days.

Every bank now presents its store of frail blue Harebells, (*Campanula rotundifolia*,) waving and trembling in the breeze. Here the Mouse-ear, (*Hieracium pilosella*,) and Ragwort, (*Senecio Jacobæa*,) raise their bright yellow stars, with Betony, (*Betonica officinalis*,) Yellow Bedstraw, (*Galium verum*,) and Tansy, (*Tanacetum vulgare*.) This plant was formerly very general in gardens, but is left now for the cottage ground, where in the

rustic plot it still takes its place with the flowers which the poet Clare describes:—

“And where the marjoram once, and sage, and rue,
And balm, and mint, and curl'd-leaf parsley grew;
And double marigolds and silver thyme,
And pumpkins 'neath the window used to climb,
And where I often when a child for hours
Tried through the pales to get the tempting flowers.
As lady's laces, everlasting peas,
True love lies bleeding with the hearts at ease;
And golden rods and tansy running high,
That o'er the pale top smiled on passer by.—
Flowers in my time that every one would praise,
Though thrown like weeds from gardens now-a-days.”

In the moist ditch, from amid thick downy leaves, the Mullein raises its spike of pale yellow flowers, and the scarlet Pimpernel, (*Anagallis arvensis*,) the Poppy, (*Papaver rhæas*,) and spreading Mallow, (*Malva sylvestris*,) are dotting the roadside with their blossoms. But the common must not be forgotten: here the different species of *Erica* raise their purple waxen bells, round which with ceaseless never-tiring hum the Wild Bee floats, presenting a lesson of industry that all should learn.

Hackney, September 6th., 1852.

THE IGUANA, (*IGUANA TUBERCULATA*.)

BY M. MAXWELL PHILIP, ESQ.

ALTHOUGH the term “Iguana” is generally used as the generic name for a whole family of Lizards, still in those countries themselves where this and the other varieties of Saurians exist, the name “Iguana” is always understood to designate but one particular sort of Lizard, while the other varieties of the same family are distinguished by other terms. Whether it is from the hurry that must always attend the observations of travellers, or the absence of sufficient investigation, errors are still very common on the subject of the Iguana. Some have described it as inhabiting trees; some have made it exceedingly active in its habits; others again have confined it exclusively to a terrestrial existence, and have entirely neglected to speak about its amphibious nature—perhaps the most important point about it. It is possibly from this cause that the naturalist who has never had the opportunity of studying the Iguana in its own climate and medium of existence, still entertains but very confused ideas in connexion with it. Unfortunately, too, the great likeness which exists between the true “Iguana” and the species next to it in gradation, and also the great ignorance of the local names by which individuals of the same family are known, tend in a great measure to create uncertainty and confusion.

The Iguana is a large Lizard, peculiar to America. Scientifically described it may be said to stand at the head of the second family of Lizards, to which it has given name—the “Iguanidæ,” of the fourth family—Sauria, of

the third class—reptiles, of the vertebrated sub-kingdom. It is generally from four to five feet long; the greater part of this great length, however, is made up by the tail, which is something more than half of the reptile. The head, in comparison with the usual size in Saurians, is short; at the junction with the neck it is large and full, and is of greater measurement from its top to the under part of the throat, while from a point taken from its summit, the jaws incline towards the muzzle at an angle of fifty, making the head of the Iguana upon the whole shorter, higher, and more symmetrical than that of either the Alligator or of any other species of its own family. The body is long and slender, without any greater roundness at any one point than at another. It is supported on four legs of considerable length; the fore ones are somewhat shorter than the hind ones, and its toes are not long, nor are the claws attached to them of any length, but those of the hinder legs are very long, with the claws corresponding: there is an appposable toe on the feet. The tail of the Iguana is exceedingly firm and wiry, and is possessed of a strong elastic power. The skin is of a firm tough texture, and is covered with small thick scales; its colour when the Iguana is young is a beautiful light green, but when it is at its full growth it is usually of a pale green, with a slight shade of yellow.

The principal mark of distinction in the Iguana and the Iguana family is the crest and dewlap with which it is provided. From the back part of the head rises a crest of strong cartilaginous substance, which runs along the back from that point to the seat of the hinder legs. A pretty correct idea of this may be conveyed by comparing it to the sharp side of a saw; the exception, however, must be made in this, that the small spears or excrescences of the crest are not so much in the shape of an equilateral triangle, nor do they stand so closely together, as the teeth of the saw. The dewlap hangs from the beginning of the throat to the seat of the fore legs. This is composed of a strong membranous substance. In the "Iguana" proper it seems to be for ornament solely, but in some other species it is capable of being distended by the reptile, and no doubt serves some purpose or other in the procuring of its food. These two ornaments vary in size according to the gender of the Iguana. In the male they are much larger, and the crest especially is more formidable than in the female.

In the line of generalization the Iguana seems to form the link between the Alligator and the other creeping things whose habits and existence are entirely terrestrial. In the scale of descent in the vertebrated kingdom, the Iguana, it would appear, stands next to the Alligator, and seems to be the continuation of the important class of reptiles from the water to the land; for it is to be observed that, whereas the Crocodile and the individuals of that family, although, strictly speaking, amphibious, do pass the whole of their lifetime in the water, the Iguana, on the contrary, which is also possessed of the power of living in both elements, passes the greater part of its existence on land, and resorts to the water only occasionally,

as the Crocodiles and Alligators do to the land.

From what precedes, it may easily be gathered that the Iguana is amphibious. It lives on the banks of large rivers and lagoons, where it is generally seen basking in the sunshine, either on the ground or on the trunk of some fallen tree. In some of the West India Islands, however, where there are no large rivers, and the shores are precipitous, it inhabits the clefts of rocks. On being pursued, if the precaution is not taken of cutting it off from the water, it immediately takes to it, into which it dives, and is not again seen.

When, however, the reptile is young, it seeks the protection of trees, on which it creeps to the very top, and secretes itself among the dense foliage. This, no doubt, is the reason why the Iguana is provided with apposable toes; for, from a study of the creature, it is easily perceived that trees are perhaps the only objects on which the young Iguanas could find security; because those reptiles, when young, are exceedingly stupid and indolent, and even seem to lack a great deal of the common instinct of self-preservation. The young Iguana will not flee away from you until your hand is almost laid upon it; its large lurid eye nevertheless is all the time fixed upon you in a vague and torpid gaze. When the Iguana has attained a considerable size, it abandons the trees and remains on the ground—the proper medium, it would appear, of its existence; it is there that it feeds. Its food consists of vegetable matter, of which it takes, upon the whole, but little, as it would seem that it requires but little aliment to maintain life. Its powers of abstinence are extraordinary. Iguanas have been known to live for weeks together without food, and to show no great decrease in their size.

The Iguana, like the generality of reptiles, is exceedingly torpid and indolent; it, however, displays great activity and extraordinary agility when it is roused to action. It will remain for hours together basking in the sun, without once moving its head or any of its limbs. Even when caught, the Iguana never makes an attempt to escape; such is its lethargy. When, however, it is pursued by the dogs, by which it is generally hunted, it displays extraordinary fleetness; it flies over the ground with astonishing rapidity. Its motions are much more graceful than those of the generality of reptiles, for it has not that tortuous movement which characterizes creeping things, from the Crocodile to the Snail.

The Iguana is exceedingly inoffensive; it does not seem to be provided by nature with any weapon either of offence or defence. Its serrated teeth seem intended solely for cropping the vegetable matter on which it lives, as a person may put his finger between its jaws with impunity. In the month of March however, the season when they seek the females, and are particularly excited, the Iguanas make dexterous use of their tails, the one against the other, in their little amorous battles. Sometimes, too, the large males will turn on the dogs that pursue them, and whip them severely with their long wiry tails. With the exception of this slight warlike disposition, these creatures are quite harmless.

The Iguana is oviparous; it buries its eggs in the soft alluvial soil on the banks of rivers, and they are there hatched. It lays many eggs at a time; these are soft, like those of the Turtle, and are covered with a parchment-like membrane. These eggs are much prized as articles of delicacy, and during the months of March and April the females are hunted for the especial purpose of taking the eggs, which they generally contain at that time.

Like many other things unknown to European taste, which nature, lavish to extremes, furnishes for the use of the inhabitants of warm climates, the Iguana is considered an exquisite article of food. It is generally hunted by dogs trained to that sort of sport, and is always taken alive, for the dogs exhaust it without worrying it. They chase the Iguana until it can run no longer, when it buries its head, like the Ostrich, in the first hole that it finds. The hunter then takes it by the tail, and secures it without any danger of being bitten.

The mode of cooking the Iguana is always in a fricassee. The flesh is soft and tender, like that of birds, but exceedingly rich, especially that of the females. Amateurs consider it excellent food, but people are not unanimous on this subject. Some deem it unwholesome, and productive of that dire disorder leprosy; there are persons, therefore, that could not be prevailed upon by any consideration to taste Iguana flesh. The truth of this notion has never been investigated by science; but perhaps it would not be prudent to disregard this belief altogether; because, however careless the inhabitants of those countries where the Iguanas exist are to making scientific deductions, they nevertheless possess on their side that long observation which, in the natural state, is the only parent of truth. Be these things as they may, one thing, however, is singular, and that is that the Iguana, which is believed to cause leprosy, is also considered the only cure for that disease, and several extraordinary cases are reported as having been permanently cured by this remedy among the South-American Indians. It would be a blessing if, upon scientific test, the belief should be found correct, for it would tend to relieve many that are now suffering from a reputed incurable disorder, and would at the same time bear important testimony in favour of homœopathy.

8, *Minerva Terrace, Barnsbury Park, London.*

MARINE ANIMALS.

THE ARGONAUT.

BY O. S. ROUND, ESQ.

(Continued from page 74.)

EVERY one knows so well the shells of this beautiful race of Marine Animals, that it is much to be regretted that their history and formation should not be also a matter of as great notoriety, for I take it to be almost a necessary

consequence of familiar acquaintance with an interesting and beautiful object, that we at once wish to be better acquainted with it. To dispel, in some measure, this reproach upon our literature, is one aim of my humble efforts, and if I succeed in the least, it must be much more attributable to my love of the subject, than my ability, 'ab initio,' to handle it.

Well then, we all know the Nautilus' shell when we see it, but we often mistake the same species of shells for varieties, from a very simple circumstance, namely, the manner in which they are prepared to form ornaments for our boudoirs and mantles. The common Argonaut, or Nautilus, is of a cream-colour, with an enamelled surface, plain on the larger part, and where it begins sensibly to decrease, covered with transverse bars and wavings of a cinnamon-colour, with a large portion of a very deep hue, in fact nearly black at the smallest end. Now, like all shells, this is likewise composed of Lamina, which have, in the upper ones at least, somewhat of a cellular structure; though in this instance the material is so compact and thin, that it is not so easily recognised as in the *Pinna* and *Mytilus* tribes. This forms the upper or apparent layer; immediately under this lies one of true Nacre, or Mother of Pearl, which more or less extends in several layers, through the remainder of the entire thickness, and is of a very beautiful surface and appearance; hence, the upper or cream-coloured and cinnamon-barred enamelled surface has only to be removed, which is very easily done by a strong acid, to render the whole shell a nacreous or pearl shell; and this is the condition in which we see it when formed into those elegant cups, or vases, or stands, so often seen among the more choice articles of *vertú*.

There are a great many species of Argonaut, of which I may speak in a future paper, but I shall now confine myself to general observations. When I speak of the upper layer being enamelled, I must be understood to mean the whole upper surface of the shell, both on the outside and inside; and hence the nacreous formation comprehends the whole interior, bearing the same relation to the enamelled layers, as the leaves of a book bear to the covers. When a section is made of these shells lengthwise, they discover to the view a series of cavities of a wedge-like figure, somewhat hollowed on the under side, which shape is formed by the circular shape of the shell; and through the centre of each of these cavities, and the layers of shell which divide them from each other, a tube passes, which is the apparatus by which the Nautilus rises to the surface of the water, or sinks to the bottom. This is performed in the following manner:—The tube thus running through these cavities is capable, at the will of the Argonaut, of sucking in or imbibing, or ejecting water; and hence, when the creature is on the surface of the sea, and desires to sink, it has nothing to do but to imbibe water into these cavities, and, like a boat filling, it necessarily sinks; and again, when at the bottom and desiring to rise, it ejects the water thus imbibed, and thus necessarily rises, by reason of the air which is always resident in the

cavities, and which is not wholly displaced by the water taken in; for this purpose, those portions of the tube which pass through the cavities are furnished with a very beautiful apparatus representing valves, so contrived as at once to expel or drink in water; and therefore the commonly received notion of the animal filling its shell with water to sink, is the correct one, although, as a broad unexplained assertion, it gives but a very imperfect idea of the true operation.

As I have before observed, in casually referring to this class of Marine Animals, the poetical notion of the sailing propensities and capabilities of these beautiful creatures is altogether without foundation. It may seem an ungracious task to dispel that which has furnished the poet with so many themes of song, or the painter with so many materials for his pencil; but as a faithful delineator of nature, I am bound to dispel this fable, and put the matter upon its real footing. Thus, what are called the sails, are nothing but a part of the mantle or interior membrane, which covers all this class of animals, and extended in this instance to protect the sides of the shell, around which, when on the surface of the sea, they are usually wrapped. Doubtless the arms or tentacula assist the shell in its movements on the water, but it much more often floats than is propelled; and the ordinary form in which it appears, is with some two or three of the arms hanging over the sides into the water, and the others protruded forward after the manner of the horns of a snail, the velamen, or protruding mantle, either loose, or wrapped around the shell; and when at the bottom of the ocean, they crawl with what would be called the shell upside down; that is, in the very reverse position to that in which they appear on the surface.

Those layers of shell which divide the cavities I have above referred to, are secreted one by one behind the animal as it grows larger, and thus the number of cavities would of course enable us to determine its age, having once ascertained how long one of these cavities is in forming; but of this I shall not speak at present; suffice it now to say that the animal resides only in the outermost portion of the shell, the whole of the cavities being filled with air only, and the agents whereby it sails or swims. The general formation of the body greatly resembles that of the starfish, but this likewise I shall for the present defer minutely describing; merely adding that any doubts, which might formerly have existed, with reference to the fact of the animal being the owner and former, as well as the inhabitant, of the shell, have been long since set at rest by numbers of Argonauts being kept in a state of captivity alive, and the shells being in numerous instances fractured and repaired by the creatures themselves. In my next paper on this elegant class, I shall refer particularly to the different genera.

(To be continued.)

NOTES ON THE CONGLOMERATE AND OLD RED SANDSTONE OF WESTMORLAND AND CUMBERLAND.

BY C. W. ROTHERY, ESQ.



C. W. R.

THERE are few formations in the lake district more curious than the Conglomerate and Old Red Sandstone. These strata can be viewed by every tourist along the north-west bank of Ullswater, at the foot of a hill, called Soulby Fell, by which passes the Patterdale and Penrith road; also the summer daily coaches convey not only lakers, but now and then a zealous lithophilist, who takes an interest in stones and the wonders of our pedal foundations; one or two having perchance the "Thoughts on a Pebble" pocketted, which evidently is a valuable book for a conglomerate.

Soulby Fell is entirely composed of this formation, and it extends in a north-west direction towards Mell Fell, a curious conical hill, which from the Keswick road seems almost isolated in a sea of swampy wastes; it then is traced across Ullswater, near the foot of the lake, over the fell towards Bampton; can be seen again at Shap Abbey, and between Orton and Tebay.

This ferruginous composition is not very compact at Soulby Fell in many places where it abuts in the Ghylls, but it becomes more consolidated in a lower situation towards Dacre. At Dacre Bridge specimens can be obtained sufficiently hard to be portable for cabinet use.

The great feature of this rock is the variety of pebbles which it contains, with evident markings of violent abrasion, held together by a heavy calcareous cement. I have found in the Conglomerate, concretions of Calcedony, very fine Porphyry, beautiful forms of Agate and Jasper, with the Shap Granite in the Diluvium, resting with it. I observed a Shap Granite pebble, rounded and very much worn, close to the Conglomerate of Orton and Tebay, placed

many feet below the surface of the diluvial clay.

It is an interesting circumstance that you may wander along the escarpment of Winder Scar, above Pooley Bridge, which is of Mountain Limestone, and contains many organic remains, as zoophytes and producta; and you may command one of the most imposing scenes in the district of the lakes; for here you look over the champaign country of the romantic vale of Eden to your right, bounded by the stern Cross Fells; and immediately in front rise and expand before the eager sight—glories of two rival counties, Cumberland and Westmorland—fair mountains resting by the lake. This charming scene you view from a scar very similar in appearance to the Yoredale tabular hills. On the left of the scar below, as you look towards the lake, is a ghyll, the banks of which are formed of Conglomerate, and here huge blocks or boulder stones are to be seen, one of which must weigh about six tons, of a substance so hard that a moderately-sized hammer will require two or three minutes knocking before a fragment flies off. The Conglomerate along the banks of the Eden is of a coarse quality, very large, and firmly cemented together. This formation can be traced without much difficulty, down the Eden from Appleby.

The most pleasing locality for observations on this rock I have seen in the north of England, is about a mile from Tebay, where there is a station on the Lancaster and Carlisle Railway, a bed rests along the channel of a brook which flows into the Lune. Here are associated, in most beautiful order, the finely-laminated Shale and Conglomerate, which is very hard and closely-cemented. The action of the stream in many places has worn the yielding Shale into oval Basins, and the rough pebbly rock above has fallen to the running eccentricities of ever-flowing and clearest water. In one spot has been scooped out a very complete, and no doubt comfortable, bath; large enough to admit a person of middle stature, as a slipper bath would do. Though more enticing than the thermæ of our large towns, which, not unfrequently, from a combination of circumstances, convey an odour by no means so pleasant as that of a pellucid running pool, warmed by the vertical rays of the sun.

The Old Red Sandstone of the north, as a rock, conveys to an amateur geologist much that is curious; but it is not so attractive as other formations, from the organic remains being rubbed to pieces as it may be supposed. Yet its near affinity to the cold-looking (though only in winter,) chain of the Silurian hills, and the warm relationship which it bears to the great carboniferous group, give pleasure in visiting the modest surface of country which it occupies in the north-west of England.

• Its younger companion, the New Red Sandstone, is interposed in the great carboniferous chain, causing a journey of several miles until you arrive at Hartside and the region about Crossfell. You may here look from an eminence over the vale of Eden, (New Red,) and wonder how that vast plain came there, separating the limestone of Motherby, from a family group which form the neck and back-bone of England, beginning at Crossfell.

Keswick, June 5th., 1852.

Miscellaneous Notices.

The Otter, (*Lutra vulgaris*).—It appears the Otter is not always partial to a funny repast; several specimens trapped in this neighbourhood having been dissected, and the stomachs found to contain remains of the Water-hen.—JOHN DIXON, Leeds, August 9th., 1852.

The Pigeon.—Can any of your correspondents furnish me with authenticated instances of the Pigeon laying more than two eggs at one nesting?—Idem.

The House Sparrow, (*Passer domesticus*).—I have paid some little attention to the nesting of the Sparrow in trees, and am led to believe that it is generally a matter of choice, although necessity may have *sometimes* compelled the selection of such situations. For some years a colony of Sparrows have regularly built in a clump of Scotch firs, close by the high road at Morrtown, near Leeds; some of the trees contain four and five nests, and although there are much safer situations among old farm buildings close at hand, this noisy crew still maintain a dogged position amongst the trees, notwithstanding the volleys of stones and other missiles discharged against them. At Gledhow a similar colony exists, but on safer principles, the nests being built under those of the Rook. It may be worth while to state that the Corinthian capitals of the Court House, Leeds, were for many years favorite nesting-places. It was droll to see the bundles of straw projecting from the carved foliage. Fertilizing showers of guano were not congenial to the habits of the "blue bottles," and the luckless Sparrows were accordingly served with a writ of ejectment.—Idem.

Occurrence of the White Stork, (*Ciconia alba*), in *Berwickshire*.—A very fine specimen of this bird was shot near the sea coast at Coldingham, a few months ago, and is now in the beautiful collection of birds at Abbey farm, North Berwick, where I had the pleasure of seeing it last month, through the courtesy of Mr. Paterson, owner of the museum. The bird had been seen in the neighbourhood for some days before it was killed.—ROBERT GRAY, Southcroft, Govan, October 19th., 1852.

Rare Birds at the Tees Mouth.—A friend of mine, (Mr. Dunn, of Hurworth, near Darlington,) one day last week shot, near the Tees mouth, two fine specimens of the Pigmy Curlew, four Sanderlings, a Turnstone, a young specimen of Richardson's Skua, and the Black-toed Gull of Bewick.—T. S. RUDD, Esq., in a letter to the Editor, dated September 1st., 1852.

Heronry.—A few years ago there was one in existence at Sands, near Sedgfield, in the county of Durham. The present owner, Mr. Ord, of Sands, called upon me yesterday, but being on the Tees, I did not see him, and consequently missed the opportunity of ascertaining whether it is still in existence or not. I have heard it is not.—Idem.

Occurrence of the Wood Warbler, (*Sylvia sylvicola*), in *Suffolk*.—A specimen of this diminutive warbler was shot in a plantation at Bosmerr on the 10th. of May last, and was presented to me for my collection: it is considered a rare bird in the centre of Suffolk.—HENRY LINGWOOD, Barking, Needham Market, June 25th., 1852.

Nesting of the Spotted Flycatcher, (*Muscicapa grisola*). The following incident took place under my own observation, and may be worthy recording in the pages of "The Naturalist:—" In the early part of May, a pair of Chaffinches, (*Fringilla cælebs*), selected the trunk of a poplar tree as a suitable situation for their nest, which was built about six feet from the ground, in a conspicuous and much frequented part of my garden, but was deserted by them before they produced eggs. A few weeks after I discovered that a pair of Spotted Flycatchers, (*Muscicapa grisola*), had taken the unoccupied nest, just as left by the Finches, and had laid three eggs, which the hen bird was sitting on. Were the Flycatchers disturbed at a former nest after the hen had laid one or two eggs, so that she was tempted to deposit the remainder in the one built by the Finches, or will they take a vacant nest in preference to one of their own structure?—Idem.

Curious death of a Partridge.—Towards the end of last March I found a Partridge, (*Perdix cinerea*), dead underneath the telegraph wires at Thungarton, near here. The head was almost severed from the neck just below the chin, and decomposition was already begun. I conjecture it had flown against the wire in the dusk, and that, too, with great velocity, and so met with

this unusual death. I have read that platelayers make a practice of driving Partridges over the line, trusting that some may meet their deaths in this way, but, surely, it could not often occur.—LATUS, Southwell, August 31st., 1852.

Pugnacity of the Robin.—In addition to the many instances that have occurred of the pugnacious disposition of this bird, I send you another. When walking with a companion on a summer's evening, two years ago, we saw two Robins, (*Erythaca rubecula*,) engaged in a fierce conflict on the ground. They allowed us to approach closely, when one flew away to a thick hedge close by, and left the other, a cock bird, wholly unable to escape. We took it up, and found it had suffered severely—a leg and wing were broken, and it was much disfigured. Thinking it was past recovery, we put it down again, when the other one flew to it again and commenced the attack anew, while we stood close by. Humanity induced us this time to drive the victor out of the vicinity, and take the conquered Robin on with us. Shortly after we left him to his fate under a hedge, and I trust out of sight of his adversary.—Idem.

I have in my collection a hen's egg of precisely the same length as that mentioned at page 133, vol. ii., but is rather rounder. It was the first egg laid by a young fowl. Does not it always happen that the first-laid hen's egg is smaller than they afterwards are? I always understood so.—Idem.

Nest of the Chaffinch, (*Fringilla cœlebs*,)—We all know that birds will frequently adopt many substances to weave into their nests, differing greatly from their usual building materials; and many curious instances have been noted of this habit. As a general rule, however, each species of birds seems to have some particular substance that it generally makes use of in nidification; but they frequently adopt different materials, which may strike their fancy by happening to fall in their way: this may be because they find them closer to their nests than the usual material. Rennie furnishes us with an account of a nest of the Wren, (*Troglodytes Europæus*,) which, instead of being lined, as usual, with feathers, the industrious little workman had neatly lined with dogs' hair, and what seemed to be scrapings of quill barrels, procured, as was supposed, from the sweepings of a neighbouring school-room. In "The Naturalist," vol. ii., page 132, there is an account of a Blackbird, (*Turdus merula*,) using for its nest a very curious article; and I have found the nest of one with more than a yard of stout cord twined round it. But I wish to inform your readers of a case I witnessed this year, of a Chaffinch, (*Fringilla cœlebs*,) a bird which, I believe, seldom or never covers its nest with anything but lichens from old palings, etc. However, as I was passing up a very pleasant lane near here, on April 25th., this year, I happened to tear up a letter which I had in my pocket, and throw it on the ground; on the 27th., I walked the same way, and found a Chaffinch had built her nest close by where torn fragments of the letter lay, and had commenced covering the outside of the nest with shreds of paper, which I knew by the blue ink, as well as by the writing, were pieces of what I had thrown down close by. I frequently went to see what progress it made, and on the 29th., had the satisfaction to see both birds busily employed in picking up the bits of paper and working them in the nest: next day it was finished and looked beautiful, just as if covered with flakes of snow. On the 1st of May it had one egg in it, so I thought I would wait till the full number was laid, and then preserve it: but alas! boys will take nests, and some marauder took this one, much to my vexation; and I have never been able to hear anything more of it.—Idem.

Curious situation of a Swift's nest.—On the outside of the clerestory of the old Cathedral here, there are several iron pipes for carrying off the rain, and in the top cavity of one of these a pair of Swifts (*Cypselus apus*,) had built their nest. What I wish to remark, though, is their singular mode of egress—instead of departing as they entered, at the top, they were accustomed to drop down, and emerge at the bottom of the pipe. I could never see them either entering or coming out while it rained; but I used to see them every evening, and noticed that they invariably entered at the top, and again left their nest by means of dropping down the pipe. They have now left us, but I hope to have the pleasure of again viewing their strange proceedings next summer. The pipe seems about five yards in length.—Idem.

Swallows affected by Rain.—About the 18th. of September, this year, we had very wet weather, and that day happened to be very cold and miserable. House Martins and Swallows were caught by the hand in the Market-place here. Yesterday was very wet, and I then

noticed that Swallows would fly quite close to anybody walking in the fields. Were they affected by the rain? or merely seeking the insects disturbed by persons passing?—Idem.

The Window Swallow, (*Hirundo urbeica*).—A friend of mine informs me that he saw on the 3rd of this month, at Grooby, about four miles from Leicester, three nests containing young; the old birds were feeding them at the time. I think this unusually late.—Idem.

Curious Varieties of the Drinker Moth, (*Odonestis Potatoria*).—I think the following occurrence well worth recording in your pages or in that of any other work treating on entomological subjects, you will however judge best, and do as you think well by inserting it or not. I bred this year about one hundred and fifty of the Larvæ of (*Odonestis potatoria*), of course letting all the Moths fly in my garden:—On the 8th. of July, (a day not to be forgotten,) I spied in the corner of the box, what I at first thought an enormous male, judge of my surprise and delight, when upon seeing it move a little, and catching a glimpse of its antennæ, it proved to be a most splendid variety, the ♀ colour of ♂ a prize that rarely falls to the lot of the entomologist. But mark my astounding good fortune. On the 19th. of July, came up an equally curious variety of the male; the colour of all the wings being absolutely a strong lead-colour. I know not which the most to prize. I never saw nor heard of anything like either one or the other, and I have seen some few I can assure you. If one was disposed to play the rogue, so complete and so brilliant are these varieties, it would only be necessary to give them some new name, and create a new *Odonestis*. The caterpillars however would call out "I am only *Potatoria varietas*."—BOMBYX ATLAS, August 5th., 1852.

The Broad-nosed Sturgeon, (*Acipenser latirostris*), was taken a few miles from the harbour in a trawl net belonging to Mrs. Chard, April 29th., 1852. Description:—Body, elongated, angular—five rows of boney plates without spines, but highly keeled; head, large, broad, and depressed; eyes, small, greyish and about six inches from tip of snout; nostrils, small, the apertures two inches from inner angle of eye; snout, conical, broad, and obtuse; mouth, small, eight inches from tip of snout; cirri four, long, slender, two inches and a half from tip of snout; skin very rough. Colour—upper portions greenish brown, with buff patches, sides, much lighter; abdomen, dirty white; length, from tip of snout to root of caudal fin, seven feet five inches, depth of body near shoulders as it lay on the stone slab, in the fish market, eleven inches and a half; superior portion of caudal fin, eighteen inches and three-eighths, inferior portion, eight inches and a half; pectoral fins, ten inches and an eighth. It was an old male:—the body was cut up and sold at sixpence per pound, but the flesh was tough and rank, and the consumers complained of its bad qualities when it was too late to remedy the evil; I procured several parasites from its tough and well-worn skin, as well as from the gills, viz:—*Caligus Mülleri*, *C. centrodonti*, etc. The creature was alive when I commenced the survey.—W. P. COCKS, Falmouth, May 8th., 1852.

Orthogoriscus truncatus.—This rather strange and rare fish was caught at the fishing station, Portlethen, in Kincardineshire. It was taken while displaying the power these fishes have of floating with their head and eyes above water, giving them the appearance of a dead or dying fish; and in this state they move slowly along sideways. They belong to the osso-cartiliginous fishes. The dimensions are as follow:—Length, four feet two inches; breadth, five feet two inches, from below the fins; circumference, five feet two inches; weight, fourteen stones, or one hundred and ninety-six pounds. I have also seen the *Orthogoriscus Mola* taken in the Bay at Aberdeen.—JAMES TAYLOR, Pitmixton, September 22nd., 1852.

Gigantic Fungus.—I never remember seeing a Fungus so large as that the size of which I give you underneath, and perhaps the account of it might be deemed worthy a place in the useful "Naturalist." It was cut in a grass field at Winterborne Zelstone, in this county, on Thursday, June 3rd., inst., and I carefully measured it myself, and can vouch for the accuracy thereof.—Depth at narrowest side, twelve inches and a half; depth at thickest side, fourteen inches and a quarter; width across at narrowest side, fifteen inches and a quarter; width across at thickest side, seventeen inches; circumference, fifty-three inches. Colour—dark brown on, under side, white on upper part.—JOHN GARLAND, Dorchester, June 5th., 1852.

The Missetoe, (*Viseum album*).—I have seen this curious plant growing here on the Thorn, and also the Nut.—LAIUS, Southwell, August 31st., 1852.

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